



April 22, 2024

David Breen
Senior Manager, Environmental Mixed Media
Port of Portland
P.O. Box 3529
Portland, OR 97208

**Subject: South Runway Soil and Groundwater Sampling
Portland International Airport**

Dear David:

This letter provides the results of soil and groundwater sampling conducted on the South Runway at the Portland International Airport (PDX; Figure 1) to support the Port of Portland Seismically Resilient Runway project. Approximately 6,000 feet of the South Runway at PDX will be mitigated to withstand a major Cascadia Subduction Zone earthquake.

PURPOSE

The purpose of this sampling was to assess the presence or absence of per- and polyfluorinated alkyl substances (PFAS) in soil and groundwater along the South Runway at PDX. The data will be used to inform design of soil and groundwater handling during construction.

SCOPE OF WORK

The scope of work was to collect soil and groundwater samples adjacent to the South Runway at five locations shown on Figure 2. Samples were collected in two mobilizations on November 13 and December 4, 2023. In November, samples were collected by hand auger from two locations (3 and 4). In December, samples were collected from all five locations using a push-probe drill rig.

FIELD ACTIVITIES

Underground Utility Location. Prior to conducting ground disturbance activities, Apex mobilized to the locations with Port personnel. Each location was cleared for underground utilities and safe movement distances adjacent to the runway.

PFAS-Specific Sampling Procedures. To reduce the chance of inadvertent PFAS contamination of samples, Apex sampling personnel and subcontractors avoided using PFAS-containing items during the sampling process. Items commonly used in sampling processes that may contain PFAS include polytetrafluoroethylene (PTFE, also known as Teflon), low-density polyethylene (LDPE), and polypropylene. Other common items that may contain PFAS include aluminum foil, post-it notes, waterproof field books, markers, chemical ice packs (e.g., blue ice), certain decontamination soaps, and certain product packaging (e.g., such as that found on pre-wrapped foods and snacks). Similarly, many clothing items contain PFAS, such as those coated with Teflon or incorporating a Gore-Tex membrane. Clothing items worn by Apex field staff had been washed at least six times, and known PFAS-containing products were avoided during sample collection. In addition, field personnel avoided the use of potentially PFAS-containing products such as cosmetics, moisturizers, insect repellent, sunscreen, and hand cream. Nitrile gloves were used during all

sample collection activities, including equipment set-up, sample collection, and the sealing of containers. PFAS contamination prevention protocols were reviewed with subcontractors and personnel daily during the field activities.

Hand Auger Samples. On November 13, 2023, soil and groundwater samples were collected at locations 3 and 4 using a hand auger. The hand auger was advanced 2 feet past first encountered groundwater.

One soil sample was collected from the unsaturated soil (ground surface to depth of first encountered groundwater) and one from saturated soil (1 foot past depth of first encountered groundwater). Composite samples of unsaturated and saturated soil were collected by combining equal amounts of soil from both locations. To collect groundwater samples, a pre-packed well screen was inserted at each location. One grab groundwater sample was collected from each boring. Field parameters, including pH, temperature, and electrical conductivity, were recorded during groundwater sampling. Groundwater monitoring data sheets are included as Attachment B.

Push-Probe Samples. On December 4, 2023, Holt Services, Inc. (Holt) of Vancouver, Washington installed five soil borings using a Geoprobe direct push-probe to several feet past first encountered groundwater. Soil cores were extracted, and soil lithology and conditions were logged in general accordance with ASTM 2487/2488. Boring logs are available in Attachment A. Soil cores were field-screened at approximately 2-foot intervals for volatile organic compounds (VOCs) using a photoionization detector.

One soil sample was collected from the unsaturated soil (ground surface to depth of first encountered groundwater) and one from saturated soil (1 foot past depth of first encountered groundwater). Composite samples of unsaturated and saturated soil were collected by combining equal amounts of soil from both locations. One grab groundwater sample was collected from each boring. Field parameters, including pH, temperature, and electrical conductivity, were recorded during groundwater sampling. Groundwater monitoring data sheets are included as Attachment B.

After both sampling events, samples were transferred into laboratory-supplied containers, stored at four degrees Celsius (°C), and submitted to Enthalpy Analytical in El Dorado Hills, California for PFAS analysis by Environmental Protection Agency (EPA) Method 1663.

Investigation-Derived Waste. Investigation-derived waste (IDW) generated during sampling included six 55-gallon drums of soil labeled with the project name, general contents, and date. The drummed IDW was transported to the PDX-designated IDW storage area pending pickup and off-site disposal by an approved IDW contractor.

RESULTS

The results of the soil and groundwater sampling are presented in Tables 1 and 2, and the laboratory report and quality assurance review are provided in Attachment C.

There were no PFAS compounds detected above reporting limits in either composite or discrete soil samples.

In groundwater, four of the five locations did not have PFAS compounds detected above the reporting limits. Location 4 was the only location with detected compounds. Nine PFAS compounds were detected during the November hand auger sampling event and one compound was detected during the December push-probe sampling. Detection limits were higher during the December sampling event.

Please contact Carmen Owens at (503)-974-0417 if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Carmen Owens". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Carmen Owens, P.E.
Senior Engineer

ATTACHMENTS

Table 1	Soil Analytical Results
Table 2	Groundwater Analytical Results
Figure 1	Site Location Map
Figure 2	Sample Locations
Attachment A	Boring Logs
Attachment B	Groundwater Data Sheets
Attachment C	Laboratory Reports and Quality Assurance Review

cc: Anzie St. Clair, Port of Portland

Table 1
Soil Analytical Results
South Runway Sampling
Portland International Airport
Portland, Oregon

Sample Type	Unsaturated Soil							Saturated Soil						
	Discrete					Composite		Discrete					Composite	
	1	2	3	4	5	3,4	1,2,3,4,5	1	2	3	4	5	3,4	1,2,3,4,5
Sample Locations	0-4.5	0-4	0-4	0-3	0-4	--	--	4.5-5.5	4-5	4-5	3-4	4-5	--	--
Depth (feet bgs)	0-4.5	0-4	0-4	0-3	0-4	--	--	4.5-5.5	4-5	4-5	3-4	4-5	--	--
Date	12/04/2023	12/04/2023	12/04/2023	12/04/2023	12/04/2023	11/13/2023	12/04/2023	12/04/2023	12/04/2023	12/04/2023	12/04/2023	12/04/2023	11/13/2023	12/04/2023
Analyte	Concentrations in ng/kg													
PFBA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFPeA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFBS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
4:2 FTS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFHxA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFPeS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
HFPO-DA	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFHpA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
ADONA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFHxS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
6:2 FTS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFOA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFHpS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFNA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFOSA	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFOS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
9CI-PF3ONS	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFDA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
8:2 FTS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFNS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
MeFOSAA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
EtFOSAA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFUnA	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFDS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
11CI-PF3OUdS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
10:2 FTS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFDoA	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFTrDA	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFDoS	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFTeDA	<0.501	<0.488	<0.481	<0.488	<0.482	<0.487	<0.481	<0.501	<0.483	<0.485	<0.490	<0.485	<0.490	<0.485
PFHxDA	<1.00	<0.977	<0.963	<0.977	<0.963	<0.975	<0.963	<1.00	<0.966	<0.970	<0.980	<0.970	<0.980	<0.970
PFODA	<1.50	<1.46	<1.44	<1.47	<1.44	<1.46 UJ	<1.44	<1.50	<1.45	<1.46	<1.47	<1.45	<1.47 UJ	<1.45

Notes:

1. ng/L = Nanograms per liter (ppt [parts per trillion]).
2. Bold values indicate the compounds was detected above laboratory reporting limits.
3. < = Compound not detected at or above laboratory reporting limit shown.
4. -- = Value not available.
5. J = The reported concentration is an estimated value.
6. Q = Identification of analyte could not be confirmed. Ion ratio exceeded control limit.
7. D = The RPD between the primary and field duplicate sample exceeded the 30% control limit. Issues with precision are suspected.
8. ft bgs = feet below ground surface

PFBA	Perfluorobutanoic acid (C4)	9CI-PF3ONS	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (F-53B major)
PFPeA	Perfluoropentanoic acid (C5)	PFDA	Perfluorodecanoic acid (C10)
PFBS	Perfluorobutane sulfonic acid (C4)	8:2 FTS	Fluorotelomer sulfonate (C8)
4:2 FTS	Fluorotelomer sulfonate (C4)	PFNS	Perfluorononane sulfonic acid (C9)
PFHxA	Perfluorohexanoic acid (C6)	MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)
PFPeS	Perfluoropentane sulfonic acid (C5)	EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)
HFPO-DA	Hexafluoropropylene oxide-dimer acid (GenX)	PFUnA	Perfluoroundecanoic acid (C11)
PFHpA	Perfluoroheptanoic acid (C7)	PFDS	Perfluorodecane sulfonic acid (C10)
ADONA	4,8-Dioxa-3H-perfluorononanoate	11CI-PF3OUdS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B minor)
PFHxS	Perfluorohexane sulfonic acid (C6)	10:2 FTS	Fluorotelomer sulfonate (C10)
6:2 FTS	Fluorotelomer sulfonate (C6)	PFDoA	Perfluorododecanoic acid (C12)
PFOA	Perfluorooctanoic acid (C8)	PFTrDA	Perfluorotridecanoic acid (C13)
PFHpS	Perfluoroheptane sulfonic acid (C7)	PFDoS	Perfluorodecane sulfonic acid (C10)
PFNA	Perfluorononanoic acid (C9)	PFTeDA	Perfluorotetradecanoic acid (C14)
PFOSA	Perfluorooctane sulfonamide (C8)	PFHxDA	Perfluorohexadecanoic acid
PFOS	Perfluorooctane sulfonic acid (C8)	PFODA	Perfluorooctadecanoic acid

Table 2
Groundwater Analytical Results
South Runway Sampling
Portland International Airport
Portland, Oregon

Sample Location	1	2	3		4		5
Sample Date	12/04/2023	12/04/2023	11/13/2023	12/04/2023	11/13/2023	12/04/2023	12/04/2023
Analyte	Concentrations in ng/L						
PFBA	<13.8	<114	<22.4	<61.5	1.59	<9.30	<400
PFMPA	<5.89	<48.8	<11.2	<26.3	<3.19	<3.97	<171
3:3 FTCA	<13.6	<113	<28.0	<60.8	<7.97	<9.19	<395
PFPeA	<3.61	<29.9	<11.2	<16.1	0.417	<2.44	<105
PFMBA	<3.89	<32.2	<11.2	<17.3	<3.19	<2.62	<113
PFBS	<5.82	<48.2	<4.97	<26.0	0.673	<3.92	<169
4:2 FTS	<10.9	<90.7	<21.0	<48.8	<5.98	<7.38	<318
PFHxA	<2.35	<19.5	<5.59	<10.5	0.272	<1.59	<68.3
PFEESA	<3.21	<26.6	<9.97	<14.3	<2.84	<2.16	<93.0
PFPeS	<4.17	<34.6	<5.24	<18.6	<1.49	<2.81	<121
HFPO-DA	<14.7	<121	<23.4	<65.4	<6.66	<9.88	<425
NFDHA	<13.4	<111	<11.2	<59.6	<3.19	<9.01	<388
5:3 FTCA	<58.4	<484	<140	<260	<39.9	<39.4	<1,690
PFHpA	<2.34	<19.4	<5.59	<10.4	0.270	<1.58	<67.8
ADONA	<13.7	<114	<22.1	<61.2	<6.30	<9.24	<398
PFHxS	<4.34	<36.0	<5.10	<19.4	0.502	<2.93	<126
6:2 FTS	<10.5	<87.1	<21.2	<46.9	<6.05	<7.09	<305
PFOA	<15.3	<127	<6.99	<68.5	1.77	19.0	<445
PFHpS	<3.25	<26.9	<5.31	<14.5	<1.51	<2.19	<94.3
7:3 FTCA	<30.9	<256	<140	<138	<39.9	<20.9	<897
PFNA	<2.09	<17.3	<5.59	<9.31	0.241	<1.41	<60.5
PFOSA	<3.43	<28.4	<5.59	<15.3	<1.59	<2.31	<99.5
PFOS	<10.1	<83.6	<5.21	<45.0	1.17	<6.80	<293
9Cl-PF3ONS	<16.6	<137	<21.8	<73.8	<6.22	<11.2	<480
PFDA	<3.66	<30.4	<5.59	<16.3	<1.59	<2.47	<106
8:2 FTS	<16.1	<134	<21.5	<71.9	<6.12	<10.9	<468
PFNS	<5.21	<43.1	<5.38	<23.2	<1.53	<3.51	<151
MeFOSAA	<5.96	<49.4	<5.59	<26.6	<1.59	<4.02	<173
EtFOSAA	<5.94	<49.2	<5.59	<26.5	<1.59	<4.01	<172
PFUnA	<3.56	<29.5	<5.59	<15.9	<1.59	<2.40	<103
PFDS	<4.86	<40.3	<5.38	<21.7	<1.53	<3.28	<141
11Cl-PF3OUdS	<16.6	<138	<21.0	<74.2	<5.98	<11.2	<483
PFDoA	<1.92	<15.9	<5.59	<8.58	<1.59	<1.30	<55.8
MeFOSA	<8.71	<72.1	<5.59	<38.8	<1.59	<5.87	<253
PFTTrDA	<2.21	<18.3	<5.59	<9.85	<1.59	<1.49	<64.0
PFDoS	<4.28	<35.5	<5.42	<19.1	<1.54	<2.89	<124
PFTeDA	<2.06	<17.1	<5.59	<9.19	<1.59	<1.39	<59.8
EtFOSA	<13.8	<114	<5.59	<61.5	<1.59	<9.30	<400
MeFOSE	<138	<1,140	<55.9	<615	<15.9	<93.0	<4,000
EtFOSE	<138	<1,140	<55.9	<615	<15.9	<93.0	<4,000

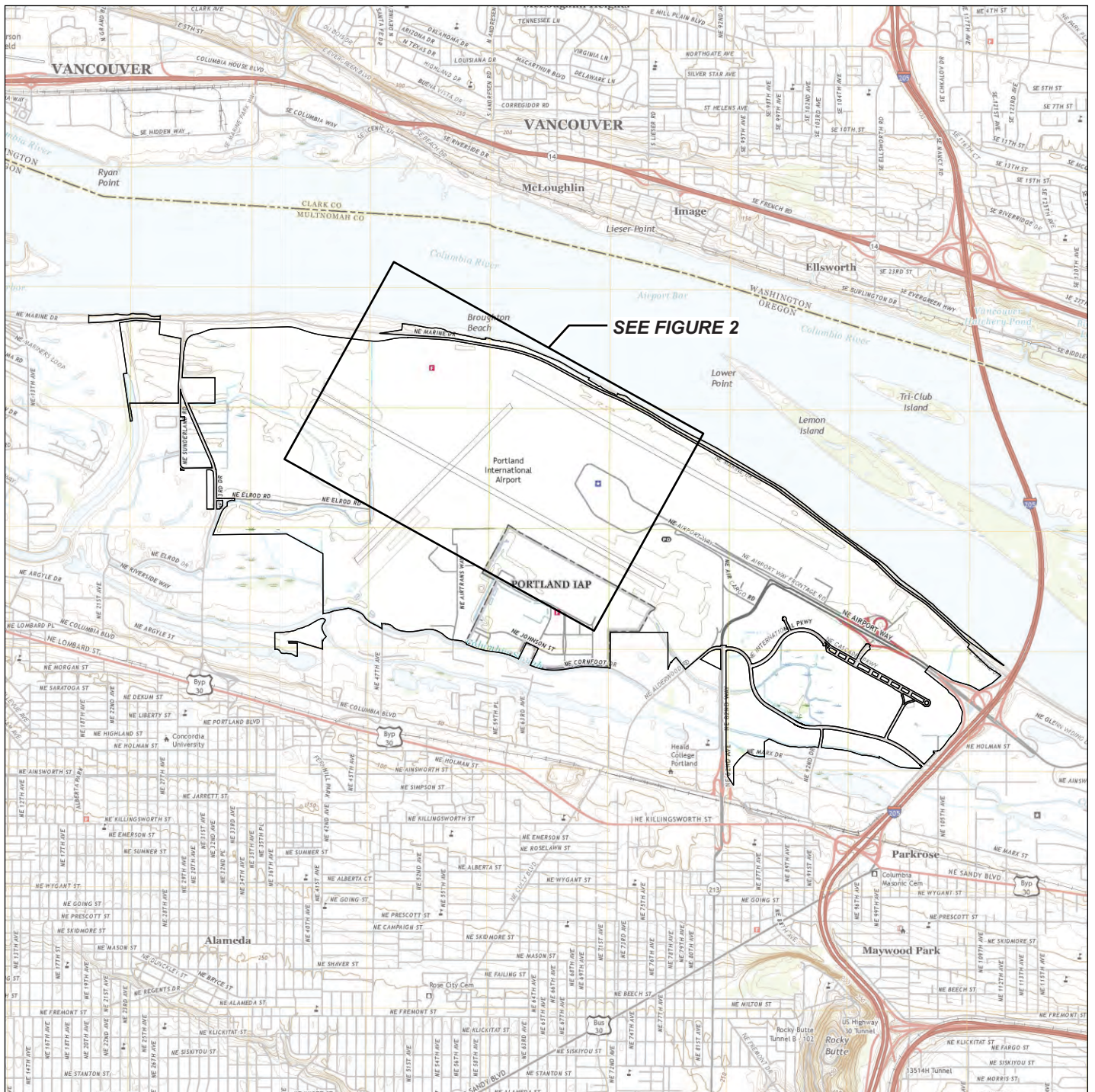
Please see notes at end of table.

Table 2
Groundwater Analytical Results
South Runway Sampling
Portland International Airport
Portland, Oregon

Notes:

1. ng/L = nanograms per liter (ppt [parts per trillion]).
2. Bold values indicate the compounds was detected above laboratory limits.
3. < = Compound not detected at or above reporting limit (for samples collected on 11/13/2023) or method detection limit (for samples collected on 12/4/2023)

PFBA	Perfluorobutanoic acid (C4)	PFNA	Perfluorononanoic acid (C9)
PFMPA	Perfluoro-3-methoxypropanoic acid	PFOSA	Perfluorooctane sulfonamide (C8)
3:3 FTCA	3-Perfluoropropyl Propanoic acid	PFOS	Perfluorooctane sulfonic acid (C8)
PFPeA	Perfluoropentanoic acid (C5)	9Cl-PF3ONS	9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (F-53B major)
PFMBA	Perfluoro(4-methoxybutanoic) acid	PFDA	Perfluorodecanoic acid (C10)
PFBS	Perfluorobutane sulfonic acid (C4)	8:2 FTS	Fluorotelomer sulfonate (C8)
4:2 FTS	Fluorotelomer sulfonate (C4)	PFNS	Perfluorononane sulfonic acid (C9)
PFHxA	Perfluorohexanoic acid (C6)	MeFOSAA	Methyl perfluorooctanesulfonamidoacetic acid (C8)
PFEESA	Perfluoro(2-ethoxyethane)sulphonic acid	EtFOSAA	Ethyl perfluorooctanesulfonamidoacetic acid (C8)
PFPeS	Perfluoropentane sulfonic acid (C5)	PFUnA	Perfluoroundecanoic acid (C11)
HFPO-DA	Hexafluoropropylene oxide-dimer acid (GenX)	PFDS	Perfluorodecane sulfonic acid (C10)
NFDHA	Nonafluoro-3,6-dioxaheptanoic acid	11Cl-PF3OUdS	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B minor)
5:3 FTCA	5:3 Fluorotelomer carboxylic acid	PFDoA	Perfluorododecanoic acid (C12)
PFHpA	Perfluoroheptanoic acid (C7)	MeFOSA	Methylperfluorooctanesulfonamide
ADONA	4,8-Dioxa-3H-perfluorononanoate	PFTTrDA	Perfluorotridecanoic acid (C13)
PFHxS	Perfluorohexane sulfonic acid (C6)	PFDoS	Perfluorodecane Sulfonic Acid
6:2 FTS	Fluorotelomer sulfonate (C6)	PFTeDA	Perfluorotetradecanoic acid (C14)
PFOA	Perfluorooctanoic acid (C8)	EtFOSA	Ethylperfluorooctanesulfonamide
PFHpS	Perfluoroheptane sulfonic acid (C7)	MeFOSE	Methylperfluorooctanesulfonamidoethanol
7:3 FTCA	7:3 Fluorotelomer carboxylic acid	EtFOSE	Ethyl perfluorooctane sulfonamido ethanol



Note: Base map prepared from USGS 7.5-minute quadrangle of Portland and Mount Tabor, WA-OR, dated 2020 as provided by USGS.gov.

0 4,000 8,000
Approximate Scale in Feet



Site Location Map

South Runway Soil and Groundwater Sampling
Portland International Airport - Port of Portland
Portland, Oregon

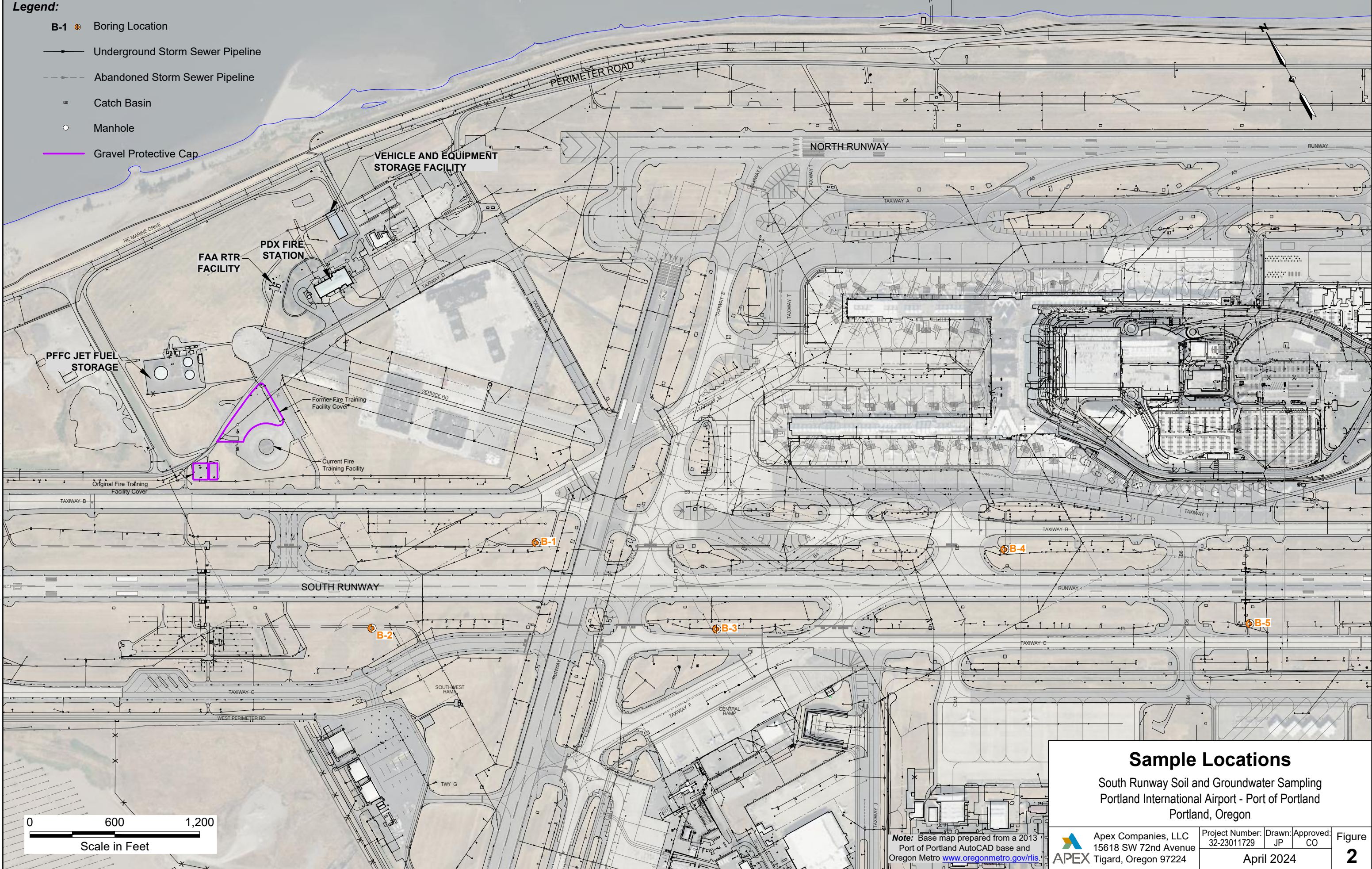


Apex Companies, LLC
15618 SW 72nd Avenue
Tigard, Oregon 97224

Project Number: 32-23011729
Drawn: JP
Approved: CO

April 2024

Figure
1



Legend:

- B-1 Boring Location
- Underground Storm Sewer Pipeline
- Abandoned Storm Sewer Pipeline
- Catch Basin
- Manhole
- Gravel Protective Cap

I:\Client\Port of Portland\Environmental Services Contract\32-23011729 PFAS Runway Drilling\32-23011729 02 (Sample Locations).dwg Modified 3/18/2024 by JPoore

0 600 1,200
Scale in Feet

Sample Locations

South Runway Soil and Groundwater Sampling
Portland International Airport - Port of Portland
Portland, Oregon

Apex Companies, LLC
15618 SW 72nd Avenue
Tigard, Oregon 97224

Project Number:	32-23011729	Drawn:	JP	Approved:	CO
April 2024					

Note: Base map prepared from a 2013 Port of Portland AutoCAD base and Oregon Metro www.oregonmetro.gov/rliis.

Figure
2

Attachment A

Boring Logs

Sample Descriptions

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, and grain size, and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:

MAJOR CONSTITUENT with additional remarks; color, moisture, minor constituents, density/consistency.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and push probe explorations is estimated based on visual observation and is presented parenthetically on test pit and push probe exploration logs.

SAND and GRAVEL	Standard Penetration Resistance in Blows/Foot	SILT or CLAY	Standard Penetration Resistance in Blows/Foot	Approximate Shear Strength in TSF
<u>Density</u>		<u>Density</u>		
Very loose	0 - 4	Very soft	0 - 2	<0.125
Loose	4 - 10	Soft	2 - 4	0.125 - 0.25
Medium dense	10 - 30	Medium stiff	4 - 8	0.25 - 0.5
Dense	30 - 50	Stiff	8 - 15	0.5 - 1.0
Very dense	>50	Very Stiff	15 - 30	1.0 - 2.0
		Hard	>30	>2.0

Moisture

Dry	Little perceptible moisture.
Sl. Moist	Some perceptible moisture, probably below optimum.
Moist	Probably near optimum moisture content.
Wet	Much perceptible moisture, probably above optimum.

Minor Constituents

	<u>Estimated Percentage</u>
Not identified in description	0 - 5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Sampling Symbols

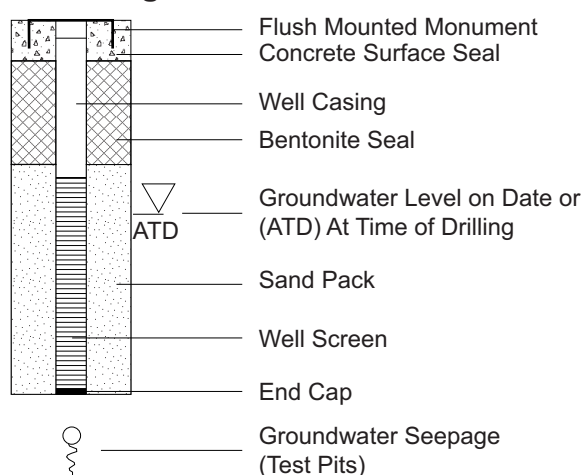
BORING AND PUSH-PROBE SYMBOLS

	Recovery
	No Recovery
	Temporarily Screened Interval
PID	Photoionization Detector Reading
W	Water Sample
	Sample Submitted for Chemical Analysis
NS	No Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
BF	Biogenic Film

TEST PIT SOIL SAMPLES

	Grab (Jar)
	Bag
	Shelby Tube

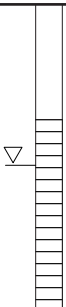
Groundwater Observations and Monitoring Well Construction



Key to Exploration Logs

South Runway Soil and Groundwater Sampling
Portland International Airport - Port of Portland
Portland, Oregon

	Apex Companies, LLC 15618 SW 72nd Avenue Tigard, Oregon 97224	Project Number: 32-23011729	Drawn: JP	Approved: CO	Figure Key
March 2024					

 Apex Companies, LLC 15618 SW 72nd Avenue Tigard, Oregon 97224					South Runway Soil and Groundwater Sampling Portland International Airport - Port of Portland Portland, Oregon		Boring Number: B-1 Project Number: 32-23011729 Logged By: D. Kolpacki Date: December 4, 2023	
Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	Site Conditions: Cloudy, 59° F Drilling Contractor: Holt Drilling Drilling Equipment: Push Probe Sampler Type: Geoprobe Depth to Water (ATD): 6.120' Surface Elevation: Not Measured		
						Boring Details and Notes:		
5			<5		Organic SILT (topsoil); dark brown, moist.			
			<5		Fine SAND; brown, moist.			
			<5		SILT; brown and gray, moist.			
			<5		Fine SAND; brown, wet.			
			<5		SILT; brown and gray, wet (saturated).			
10					Bottom of Boring at 8.0' BGS.			
						Boring Number: B-2 Logged By: D. Kolpacki Date: December 4, 2023		
Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	Site Conditions: Cloudy, 57° F Drilling Contractor: Holt Drilling Drilling Equipment: Push Probe Sampler Type: Geoprobe Depth to Water (ATD): 4.190' Surface Elevation: Not Measured		
						Boring Details and Notes:		
5			<5		Organic SILT (topsoil); brown.			
			<5		Fine SAND; brown, moist.			
			<5		SILT; brown and gray, moist.			
			<5		SILT with interbedded fine sand layers (~2"); brown, wet.			
			<5		Bottom of Boring at 8.0' BGS.			
10								

 Apex Companies, LLC 15618 SW 72nd Avenue Tigard, Oregon 97224 South Runway Soil and Groundwater Sampling Portland International Airport - Port of Portland Portland, Oregon					Boring Number: B-3 Project Number: 32-23011729 Logged By: D. Kolpacki Date: December 4, 2023 Site Conditions: Drizzle, 56° F Drilling Contractor: Holt Drilling Drilling Equipment: Push Probe Sampler Type: Geoprobe Depth to Water (ATD): 3.585' Surface Elevation: Not Measured Boring Details and Notes:	
Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	
5			<5		Organic SILT (topsoil); brown.	
			<5		Fine SAND; brown, moist, with trace gravel.	
			<5		SILT; brown and gray, wet (saturated).	
			<5		Becomes gray.	
10			<5		Bottom of Boring at 8.0' BGS.	
						5 10 B-3 (Water Sample)
						Boring Number: B-4 Logged By: D. Kolpacki Date: December 4, 2023 Site Conditions: Cloudy, 61° F Drilling Contractor: Holt Drilling Drilling Equipment: Push Probe Sampler Type: Geoprobe Depth to Water (ATD): 3.435' Surface Elevation: Not Measured Boring Details and Notes:
Depth, feet	Core Interval/Recovery	Laboratory Sample ID	PID	Sheen	Lithologic Description	
5			<5		Topsoil; dark brown, moist.	
			<5		SILT; brown, moist, with trace gravel.	
			<5		Fine SAND and SILT; brown, interbedded layers (~2-6").	
			<5		SILT; brown and gray, wet (saturated).	
			<5		Fine SILT; brown and gray, wet (saturated).	
10			<5		Bottom of Boring at 8.0' BGS.	
						5 10 B-4 (Water Sample)

Attachment B

Groundwater Data Sheets

Apex Companies, LLC
15618 SW 72nd Ave.
Portland, OR 97224

Location I.D.	HA-3	Job Number:	32-23006356
Client:	POP	Date:	11/13/2023
Project:	PDX	Sampler:	CW/DK
Weather:	55°, cloudy	Time In/Out:	1400/1445

WELL DATA

Boring Depth:	7.5 feet	PVC Diameter:	3/4 inch	Water Height	
Depth to Water:	5.5 feet bgs	Screened Interval:	2.5'-7.5'	x Multiplier	
Water Column Length:	n/a	Depth to Free Product:	n/a	x Casing Volumes	
Purge Volume:		Free Product Thickness:	n/a	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

[illegible]

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:		HA-3	Sampling Flow Rate	0.2 L/min	Analytical Laboratory:	Enthalpy	
Sample Time:		1438	Final Depth to Water:	n/a	Did Well Dewater?	No	
# Containers/Type		Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3	Poly	NP	PFAS	no	No Filter		

COMMENTS

Apex Companies, LLC
15618 SW 72nd Ave.
Portland, OR 97224

Location I.D.	HA-4	Job Number:	32-23006356
Client:	POP	Date:	11/13/2023
Project:	PDX	Sampler:	CW/DK
Weather:	54°, mostly cloudy	Time In/Out:	1100/1220

WELL DATA

Boring Depth:	7 feet bgs	PVC Diameter:	3/4 inch	Water Height	
Depth to Water:	5 feet bgs	Screened Interval:	2'-7'	x Multiplier	
Water Column Length:	n/a	Depth to Free Product:	n/a	x Casing Volumes	
Purge Volume:		Free Product Thickness:	n/a	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

[illegible]

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:			Sampling Flow Rate	0.2 L/min	Analytical Laboratory:	Enthalpy	
Sample Time:			Final Depth to Water:	feet	Did Well Dewater?	No	
# Containers/Type		Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3	Poly	NP	PFAS	no	No Filter		

COMMENTS

Apex Companies, LLC
15618 SW 72nd Ave.
Portland, OR 97224

Well I.D.	Location 1	Job Number:	32-23011729
Client:	POP	Date:	12/4/2023
Project:	PDX	Sampler:	DK
Weather:	59°, cloudy	Time In/Out:	

WELL DATA

Well Depth:	8 feet	Well Diameter:	3/4 inch	Water Height	
Depth to Water:	6.1 feet	Screened Interval:	3'-8'	x Multiplier	
Water Column Length:	n/a	Depth to Free Product:	n/a	x Casing Volumes	
Purge Volume:		Free Product Thickness:	n/a	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

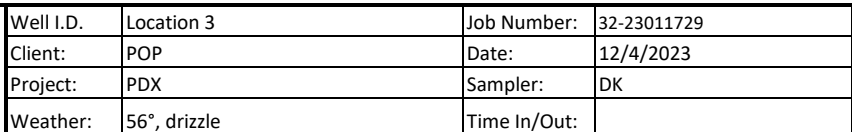
[illegible]

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:			Sampling Flow Rate	0.2 L/min	Analytical Laboratory:		Enthalpy	
Sample Time:			Final Depth to Water:	feet	Did Well Dewater?		No	
# Containers/Type		Preservative	Analysis/Method	Field Filtered	Filter Size		MS/MSD	Duplicate ID
3	Poly	NP	PFAS	no	No Filter			
					No Filter			

COMMENTS



Well Depth:	8 feet	Well Diameter:	3/4 inch	Water Height	
Depth to Water:	3.5 feet	Screened Interval:	3'-8'	x Multiplier	
Water Column Length:	n/a	Depth to Free Product:	n/a	x Casing Volumes	
Purge Volume:		Free Product Thickness:	n/a	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

Purge Method:		Pump Intake Depth:		Comments
Sampling Method:	low flow peristaltic	Tubing Type:		

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

Sample ID:			Sampling Flow Rate	0.2 L/min	Analytical Laboratory:	Enthalpy	
Sample Time:			Final Depth to Water:	feet	Did Well Dewater?	No	
# Containers/Type		Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3	Poly	NP	PFAS	no	No Filter		

Apex Companies, LLC
15618 SW 72nd Ave.
Portland, OR 97224

Well I.D.	Location 4	Job Number:	32-23011729
Client:	POP	Date:	12/4/2023
Project:	PDX	Sampler:	DK
Weather:	61°, cloudy	Time In/Out:	

WELL DATA

Well Depth:	8 feet	Well Diameter:	3/4 inch	Water Height
Depth to Water:	3.4 feet	Screened Interval:	3'-8'	x Multiplier
Water Column Length:	n/a	Depth to Free Product:	n/a	x Casing Volumes
Purge Volume:		Free Product Thickness:	n/a	= Purge Volume
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters

PURGING DATA

[illegible]

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:			Sampling Flow Rate	0.2 L/min	Analytical Laboratory:	Enthalpy	
Sample Time:			Final Depth to Water:	feet	Did Well Dewater?	No	
# Containers/Type		Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3	Poly	NP	PFAS	no	No Filter		

COMMENTS

Apex Companies, LLC
15618 SW 72nd Ave.
Portland, OR 97224

Well I.D.	Location 5	Job Number:	32-23011729
Client:	POP	Date:	12/4/2023
Project:	PDX	Sampler:	DK
Weather:	62°, cloudy	Time In/Out:	

WELL DATA

Well Depth:	8 feet	Well Diameter:	3/4 inch	Water Height	
Depth to Water:	3.1 feet	Screened Interval:	3'-8'	x Multiplier	
Water Column Length:	n/a	Depth to Free Product:	n/a	x Casing Volumes	
Purge Volume:		Free Product Thickness:	n/a	= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

[illegible]

Clarity: VC = very cloudy, Cl = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

SAMPLING DATA

Sample ID:			Sampling Flow Rate	0.2 L/min	Analytical Laboratory:	Enthalpy	
Sample Time:			Final Depth to Water:	feet	Did Well Dewater?	No	
# Containers/Type		Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
3	Poly	NP	PFAS	no	No Filter		

COMMENTS

Attachment C

Laboratory Reports and Quality Assurance Review

Attachment C – Quality Assurance/Quality Control Review

1.0 Introduction

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for 18 soil and 7 groundwater samples collected from soil borings at the Portland International Airport Fire Training Facilities, Portland, Oregon. Samples from the Site were analyzed by Enthalpy Analytical (Enthalpy) of El Dorado Hills, California. Copies of the analytical laboratory reports are included in this appendix and referenced in Table 1 as follows.

Table 1: Analytical Laboratory Reports

Report	Report Date	Sampling Event
2311186	December 14, 2023	PDX Runway Sampling
2312043	January 9, 2024	

2.0 Data Validation

The QA review outlines the applicable quality control criteria utilized during the data review process, as well as any deviations from those criteria. Examination and validation of the laboratory summary reports include:

- Analytical preparation and quantitation methods;
- Analytical method holding times;
- Field and sampling procedures;
- Sample management;
- Chain of custody handling;
- Detection and reporting limits;
- Analyte identification and quantitation;
- Method blank and equipment blank detections;
- Ongoing precision and recovery (OPR) recoveries to assess laboratory accuracy;
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) differences to assess laboratory precision; and
- Field duplicates to assess sampling and laboratory precision

The QA/QC review did not include a review of raw data.

Attachment C – Quality Assurance/Quality Control Review

This QA/QC review documents the relationship between analytical findings and data quality objectives based on precision and accuracy. It also summarizes possible error or bias and the effect on data quality and usability.

The laboratory quality control (QC) samples provided in data packages were used to evaluate laboratory contamination or background interferences, sample preparation efficiency, instrumentation performance, and sample matrix interferences. The QC samples provided by the analytical laboratories include method blanks, laboratory control samples (LCS) and ongoing precision and recovery (OPR). Labeled standards were also analyzed to assess sample preparation efficiency and matrix interferences.

2.1 Data Qualifiers

Any data that is found to have possible bias or error was qualified and flagged. The following are flags used in this QA/QC review and data tables.

Table 2: Qualifier Flags

H	Recovery and/or RPD was outside laboratory acceptance limits.
Q	Identification of analyte could not be confirmed. Ion ratio exceeded control limit.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

3.0 Analytical Methods

The samples were extracted and analyzed for a select list of per- and polyfluorinated alkyl substances (PFAS) using the Draft PFAS U.S. Environmental Protection Agency [EPA] Method 1633 (aqueous samples) and the PFAS Isotope Dilution Method (solid samples) by Enthalpy of El Dorado Hills, California. The EPA method for the aqueous samples includes an analytical list of 40 PFAS compounds and the Isotope Dilution Method for the solid samples includes an analytical list of 32 compounds. The results for PFHxS, PFOA, PFOSA, PFOS, MeFOSAA, and EtFOSAA include linear and branched isomers for both methods, and additionally PFOSA, MeFOSA, MeFOSE, EtFOSA AND EtFOSE for Method 1633. Results for all other PFAS include linear isomers only.

4.0 Data Quality Assurance Review

The general QA objectives for this project were to develop and implement procedures for obtaining, evaluating, and confirming the usability of data of a specified quality. To collect such information, analytical

Attachment C – Quality Assurance/Quality Control Review

data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual field conditions, and samples must be collected and analyzed using unbroken chain-of-custody procedures.

Reporting limits and analytical results were compared to cleanup and screening levels for each parameter in the matrix of concern. Precision, accuracy, completeness, and comparability parameters used to indicate data quality are defined below.

4.1 Sample Management

Chain-of-custody documents were implemented for handling and managing samples. The chain-of-custody documents were appropriately filled out with sample identification, sample date, sample time, and analysis to be performed, and were relinquished by the Apex Companies sampler and received by Enthalpy. Samples were shipped to Enthalpy via FedEx and were packed with wet ice in three total coolers. Upon receipt by the laboratory, the sample temperatures were recorded as 1.9 and 1.6 degrees Celsius (°C) for the first shipment and 5.4°C for the second. The laboratory noted the condition of the following water samples received:

- All three sample containers for HA-3, B-1, B-3 and B-4, as well as one of three sample containers for HA-4, contain light color and approximately 5% particulate.
- One of three containers for HA-4 and all three sample containers for B-2 contain dark color and approximately 10% particulate.
- All three sample containers for B-5 contain approximately 10% particulate.

Groundwater samples B-1, B-2, B-3, B-4 and B-5 contained greater than 50 milligrams (mg) of particulate and a subsample was taken from each for extraction and analysis. The PFAS reported by the laboratory are almost exclusively found in the aqueous portion of the samples. The longer carbon chain PFAS will sorb more to the particulate; however, this will also result in lower recoveries for longer-chain internal standards.

4.2 Holding Times

The holding time is the minimum amount of time the sample can be stored before analytes start to degrade and are not representative of initial sampling concentrations. Water samples collected in HDPE containers can be stored at ≤6°C for 28 days before extraction and analysis. The samples were extracted and analyzed within the recommended hold time.

4.3 Reporting Limits

Reporting limits are the lowest concentration at which an instrument is capable of accurately detecting an analyte. They are determined by the laboratory and are based on instrumentation capabilities, the matrix of

Attachment C – Quality Assurance/Quality Control Review

field samples, sample preparation procedures, and EPA-suggested reporting limits. Reporting limits for PFAS were consistent with historical data and below promulgated screening values.

4.4 Analyte Identification and Quantitation

For analysis of PFAS, the recoveries of labeled standards were within control limits. Labeled standards are spiked directly into samples before preparation to determine matrix interferences and concentration of analytes. Recovery of these labeled standards automatically corrects sample concentration due to isotope dilution. Data quality is not considered affected if the signal-to-noise ratio is greater than 10:1, which was achieved. The %R value for labeled standard 13C2-PFHxDA in sample B-5 Unsaturated was “H” flagged due to recovery below control limits. Because the recovery was above the expanded lower limit of 10%, no data were qualified.

Ion ratios help to identify compounds in complex matrices. When ion ratios are exceeded, the positive identification for the analyte is not confirmed, and the analyte is only suspected as being present in the sample. Such results are ‘Q’ flagged in the table as analytes that are suspected to be present, but the identification could not be confirmed with ion ratios. Ion ratios for this data set were within control limits, except for the labeled standards for d3-MeFOSA and d5-EtFOSA in sample B-1 were below the limits. The results were ‘Q’ flagged by the laboratory. Because the recoveries were above the expanded lower limit of 10%, no data were qualified.

4.5 Method Blanks

A method – or laboratory – blank is a quality control sample prepared by the laboratory from an analyte-free matrix and analyzed in an analytical batch along with environmental and other QC samples. It is used to assess laboratory contamination or background interferences. PFAS were not detected in analytical batch method blanks.

4.6 Equipment Blank

An equipment blank is a sample of analyte-free water poured over or through decontaminated field sampling equipment during a sampling event. Equipment blanks assess contamination from the total sampling, sample preparation, and measurement process when decontaminated sampling equipment is used to collect samples. No equipment blanks were analyzed with this dataset.

4.7 Accuracy

Accuracy compares the accepted reference concentration of an analyte to the concentration determined analytically. Accuracy is measured as a percent recovery. This recovery must be within a certain range – or control limit – for the data in an analytical batch to be considered acceptable. The analytical laboratory

Attachment C – Quality Assurance/Quality Control Review

provides quality control samples and surrogates to help determine the accuracy and acceptability of the data reported. These quality control samples and surrogates are discussed below.

4.7.1 Ongoing Precision and Recovery (OPR)

An ongoing precision and recovery standards (OPR) were analyzed by the laboratory to assess the accuracy of the analytical methods. The standards are prepared from an analyte-free matrix that is spiked with known levels of compounds of concern. The concentrations are measured and compared to the known spiked levels, expressed as a percent recovery. This percent recovery must be within method or laboratory defined control limits for data to be considered acceptable. Analytes were recovered within OPR quality control limits, except for the following:

- The %R values for PFODA in the Isotope Dilution Method for batch B23L024 was below control limits. The non-detect results for the Unsaturated and Saturated composites collected on November 13, 2023 have been qualified as estimated (UJ).

4.8 Precision

Precision is measured by how close values of duplicate analyses are to each other. These duplicate analyses are prepared from separate aliquots of the same sample and are analyzed at the same (or similar) time. Precision in the field ensures that samples taken are representative of field concentrations; this is demonstrated by field duplicates. Analytical precision is the ability of the laboratory to reproduce results that are similar to each other; this is measured through duplicate analysis of environmental and batch QC samples. Precision is estimated by the relative percent difference (RPD) between the original analysis and the duplicate analysis.

4.8.1 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

A laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were analyzed by the laboratory to assess the precision of EPA Method 1633. The LCS and LCSD are prepared from an analyte-free matrix that is spiked with known levels of compounds of concern. The concentrations are measured and compared to the known spiked levels, expressed as a percent recovery. This percent recovery and the RPD between recoveries must be within method or laboratory defined control limits for data to be considered acceptable. Analytes were recovered within LCS/LCSD quality control limits.

4.8.2 Field Duplicate

A field duplicate is a second field sample collected from a selected sample location. Field duplicate samples serve as a check on laboratory precision and sampling quality, as well as potential variability of the sample matrix. The field duplicate is analyzed and compared to the original sample to assess precision. This

Attachment C – Quality Assurance/Quality Control Review

comparison can be expressed by the RPD between the original and duplicate samples. Field duplicate samples are controlled if the reported result is greater than five times the reporting limit. No field duplicate samples were collected with this dataset.

5.0 Conclusion

In conclusion, the QA objectives have been met and the data are of sufficient quality for use in this project.



December 14, 2023

**Enthalpy Analytical - El Dorado Hills
Work Order No. 2311186**

Ms. Carmen Owens
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Owens,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on November 16, 2023 under your Project Name 'PDX Runway Sampling / 32-23011729'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at kathy.zipp@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

Kathy Zipp
Project Manager

Enthalpy Analytical -EDH certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Enthalpy Analytical -EDH.

Enthalpy Analytical - EDH Work Order No. 2311186

Case Narrative

Sample Condition on Receipt:

Two aqueous samples and six solid samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the recommended temperature requirements. A sample ID discrepancy was noted for sample "HA-4 Unsaturated (0-5)" between the container label and the Chain-of-Custody (CoC). The sample ID has been reported as listed on the CoC. As directed, samples "HA-3 Unsaturated (0-5)", "HA-4 Unsaturated (0-5)", "HA-3 Saturated (5-6)" and "HA-4 Saturated (5-6)" were placed on hold

Analytical Notes:

Draft EPA Method 1633 (Aqueous)

The samples were extracted and analyzed for a selected list of PFAS using Draft EPA Method 1633. The results for PFHxS, PFOA, PFOSA, PFOS, MeFOSAA, EtFOSAA, MeFOSA, MeFOSE, EtFOSA, EtFOSE include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank, Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) and Low-Level Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the LOQ concentration. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

PFAS Isotope Dilution Method

The samples were extracted and analyzed for a selected list of PFAS using Enthalpy Analytical - EDH's Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the Reporting Limits (RL). The recovery of PFODA below 40% in the OPR. The reported sample results for these analytes may be biased low. The recoveries of all other analytes were within the acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

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Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2311186-01	HA-3	13-Nov-23 14:39	16-Nov-23 09:04	HDPE Bottle, 500 mL HDPE Bottle, 500 mL HDPE Bottle, 125 mL
2311186-02	HA-4	13-Nov-23 12:11	16-Nov-23 09:04	HDPE Bottle, 500 mL HDPE Bottle, 500 mL HDPE Bottle, 125 mL
2311186-03	Unsaturated Composite	13-Nov-23 11:30	16-Nov-23 09:04	HDPE Bottle, 250 mL
2311186-04	Saturated Composite	13-Nov-23 11:45	16-Nov-23 09:04	HDPE Bottle, 250 mL
2311186-05	HA-3 Unsaturated (0-5)	13-Nov-23 14:13	16-Nov-23 09:04	HDPE Bottle, 250 mL
2311186-06	HA-4 Unsaturated (0-5)	13-Nov-23 11:30	16-Nov-23 09:04	HDPE Bottle, 250 mL
2311186-07	HA-3 Saturated (5-6)	13-Nov-23 14:23	16-Nov-23 09:04	HDPE Bottle, 250 mL
2311186-08	HA-4 Saturated (5-6)	13-Nov-23 11:45	16-Nov-23 09:04	HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank
EPA Method 1633

Client Data					Laboratory Data				
Name:	Apex Companies, LLC	Matrix:	Aqueous		Lab Sample:	B23K236-BLK1	Column:	BEH C18	
Project:	PDX Runway Sampling / 32-23011729								
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	6.40		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFMPA	ND	3.20		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
3:3 FTCA	ND	8.00		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFPeA	ND	3.20		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFMBA	ND	3.20		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFBS	ND	1.42		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
4:2 FTS	ND	6.00		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFHxA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFEESA	ND	2.85		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFPeS	ND	1.50		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
HFPO-DA	ND	6.68		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
NFDHA	ND	3.20		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
5:3 FTCA	ND	40.0		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFHpA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
ADONA	ND	6.32		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFHxS	ND	1.46		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
6:2 FTS	ND	6.07		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFOA	ND	2.00		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFHpS	ND	1.52		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
7:3 FTCA	ND	40.0		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFNA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFOSA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFOS	ND	1.49		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
9CI-PF3ONS	ND	6.24		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFDA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
8:2 FTS	ND	6.14		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFNS	ND	1.54		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
MeFOSAA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
EtFOSAA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFOA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFDS	ND	1.54		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
11CI-PF3OUdS	ND	6.00		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFDoA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
MeFOSA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFTTrDA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFDOS	ND	1.55		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
PFTeDA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	
EtFOSA	ND	1.60		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1	

Sample ID: Method Blank					EPA Method 1633					
Client Data				Laboratory Data						
Name: Apex Companies, LLC		Matrix: Aqueous		Lab Sample: B23K236-BLK1		Column: BEH C18				
Project: PDX Runway Sampling / 32-23011729										
Analyte	Conc. (ng/L)			RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
MeFOSE	ND			16.0		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
EtFOSE	ND			16.0		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	79.8	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C5-PFPeA	IS	78.7	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C2-4:2 FTS	IS	77.6	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C3-PFBS	IS	77.6	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C5-PFHxA	IS	78.4	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C4-PFHpA	IS	73.6	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C3-HFPO-DA	IS	79.3	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C2-6:2 FTS	IS	77.2	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C8-PFOA	IS	78.5	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C3-PFHxS	IS	76.9	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C9-PFNA	IS	76.1	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C2-8:2 FTS	IS	72.4	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C6-PFDA	IS	84.5	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
d3-MeFOSAA	IS	69.4	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C8-PFOS	IS	76.3	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
d5-EtFOSAA	IS	61.8	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C7-PFUnA	IS	82.1	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C8-PFOSA	IS	53.6	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C2-PFDoA	IS	75.8	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
13C2-PFTeDA	IS	69.5	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
d7-MeFOSE	IS	42.7	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
d3-MeFOSA	IS	38.8	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
d9-EtFOSE	IS	41.3	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1
d5-EtFOSA	IS	35.1	20 - 150			B23K236	05-Dec-23	0.500 L	08-Dec-23 23:05	1

RL - Reporting limit

Results reported to RL.

Sample ID: LCSD
EPA Method 1633

Name:	Apex Companies, LLC	Lab Sample:	B23K236-BS1/B23K236-BSD1	Date Extracted:	05-Dec-23
Project:	PDX Runway Sampling / 32-23011729	QC Batch:	B23K236	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.500/0.500 L		

Analyte	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	20.1	20.0	101		21.0	20.0	105	4.35		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFMPA	10.6	10.0	106		11.0	10.0	110	3.53		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
3:3 FTCA	23.9	25.0	95.7		24.6	25.0	98.3	2.68		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFPeA	9.91	10.0	99.1		10.3	10.0	103	4.10		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFMBA	10.7	10.0	107		11.0	10.0	110	3.46		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFBS	4.79	4.44	108		5.02	4.44	113	4.77		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
4:2 FTS	19.9	18.8	106		20.6	18.8	110	3.49		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFHxA	5.16	5.00	103		5.35	5.00	107	3.71		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFEESA	9.76	8.88	110		10.5	8.88	118	7.19		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFPeS	4.66	4.72	98.8		4.98	4.72	106	6.63		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
HFPO-DA	21.1	21.2	99.7		22.9	21.2	108	8.29		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
NFDHA	10.8	10.0	108		11.3	10.0	113	4.75		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
5:3 FTCA	121	125	97.1		125	125	99.9	2.93		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFHpA	5.28	5.00	106		5.61	5.00	112	5.99		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
ADONA	20.4	20.0	102		22.1	20.0	111	8.13		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFHxS	4.78	4.56	105		5.33	4.56	117	10.8		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
6:2 FTS	19.4	19.0	102		21.3	19.0	112	9.44		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFOA	4.99	5.00	99.9		5.59	5.00	112	11.3		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFHpS	4.70	4.76	98.8		5.00	4.76	105	6.10		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
7:3 FTCA	104	125	83.3		109	125	87.3	4.66		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFNA	4.81	5.00	96.1		5.33	5.00	107	10.3		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFOSA	5.20	5.00	104		5.23	5.00	105	0.576		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFOS	4.55	4.64	98.0		4.89	4.64	105	7.29		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
9Cl-PF3ONS	21.0	19.8	106		22.9	19.8	116	8.79		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFDA	5.03	5.00	101		5.26	5.00	105	4.55		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
8:2 FTS	20.4	19.2	106		22.6	19.2	118	10.3		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFNS	4.76	4.80	99.1		5.17	4.80	108	8.29		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
MeFOSAA	4.83	5.00	96.5		5.43	5.00	109	11.7		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
EtFOSAA	5.18	5.00	104		5.13	5.00	103	0.989		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFUnA	5.58	5.00	112		5.17	5.00	103	7.50		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFDS	4.54	4.84	93.8		4.92	4.84	102	8.04		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
11Cl-PF3OUdS	21.1	20.0	105		22.4	20.0	112	6.05		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFDaA	5.08	5.00	102		5.77	5.00	115	12.7		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1

Sample ID: LCSD
EPA Method 1633

Name:	Apex Companies, LLC		Lab Sample:	B23K236-BS1/B23K236-BSD1							Date Extracted:	05-Dec-23			
Project:	PDX Runway Sampling / 32-23011729		QC Batch:	B23K236							Column:	BEH C18			
Matrix:	Aqueous		Samp Size:	0.500/0.500 L											
Analyte	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
MeFOSA	5.47	5.00	109		5.31	5.00	106	2.89		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFTTrDA	5.49	5.00	110		5.57	5.00	111	1.52		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFDoS	4.24	4.84	87.7		4.58	4.84	94.6	7.64		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
PFTeDA	5.31	5.00	106		5.65	5.00	113	6.26		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
EtFOSA	5.60	5.00	112		5.97	5.00	119	6.47		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
MeFOSE	54.3	50.0	109		57.5	50.0	115	5.87		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
EtFOSE	56.7	50.0	113		60.6	50.0	121	6.55		40-150	30	08-Dec-23 23:18	1	08-Dec-23 23:45	1
Labeled Standards	Type		LCS % Rec	LCS Quals			LCSD % Rec		LCSD Quals	Limits		LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C4-PFBA	IS		77.0				76.8			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C5-PFPeA	IS		75.3				71.8			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C2-4:2 FTS	IS		74.1				75.9			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C3-PFBS	IS		72.6				73.6			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C5-PFHxA	IS		74.3				70.6			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C4-PFHpA	IS		71.1				67.4			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C3-HFPO-DA	IS		74.7				69.1			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C2-6:2 FTS	IS		74.2				74.2			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C8-PFOA	IS		73.7				72.1			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C3-PFHxS	IS		75.9				74.1			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C9-PFNA	IS		74.2				73.4			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C2-8:2 FTS	IS		74.3				69.0			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C6-PFDA	IS		81.1				76.8			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
d3-MeFOSAA	IS		70.1				65.0			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C8-PFOS	IS		77.2				74.6			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
d5-EtFOSAA	IS		63.0				61.2			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C7-PFUnA	IS		75.0				81.7			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C8-PFOSA	IS		51.9				52.1			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C2-PFDoA	IS		72.8				73.4			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
13C2-PFTeDA	IS		63.1				62.6			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
d7-MeFOSE	IS		39.7				41.8			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
d3-MeFOSA	IS		35.9				38.4			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
d9-EtFOSE	IS		38.5				39.7			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1
d5-EtFOSA	IS		31.9				33.3			20 - 150		08-Dec-23 23:18	1	08-Dec-23 23:45	1

Sample ID: OPR
EPA Method 1633

Client Data					Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Aqueous		Lab Sample:	B23K236-BS2	Column:	BEH C18		
Project:	PDX Runway Sampling / 32-23011729									
Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	13.9	12.8	109	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFMPA	7.26	6.40	113	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
3:3 FTCA	16.3	16.0	102	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFPeA	7.18	6.40	112	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFMBA	7.21	6.40	113	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFBS	3.40	2.84	120	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
4:2 FTS	14.5	12.0	121	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFHxA	3.77	3.20	118	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFEESA	6.55	5.68	115	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFPeS	3.25	3.01	108	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
HFPO-DA	14.7	12.8	115	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
NFDHA	7.10	6.40	111	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
5:3 FTCA	77.6	80.0	96.9	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFHpA	3.55	3.20	111	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
ADONA	13.6	12.1	113	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFHxS	3.41	2.92	117	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
6:2 FTS	13.9	12.2	114	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFOA	3.68	3.20	115	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFHpS	3.23	3.05	106	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
7:3 FTCA	72.1	80.0	90.1	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFNA	3.42	3.20	107	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFOSA	3.49	3.20	109	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFOS	3.59	2.97	121	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
9Cl-PF3ONS	14.6	12.0	122	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFDA	4.03	3.20	126	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
8:2 FTS	14.3	12.3	117	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFNS	3.62	3.08	117	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
MeFOSAA	3.03	3.20	94.7	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
EtFOSAA	3.24	3.20	101	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFUnA	3.42	3.20	107	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFDS	3.25	3.09	105	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
11Cl-PF3OUdS	13.7	12.1	113	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFDaA	3.38	3.20	106	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
MeFOSA	3.56	3.20	111	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1

Sample ID: OPR
EPA Method 1633

Client Data					Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Aqueous		Lab Sample:	B23K236-BS2	Column:	BEH C18		
Project:	PDX Runway Sampling / 32-23011729									
Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFTTrDA	3.62	3.20	113	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFDoS	3.16	3.10	102	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
PFTeDA	3.96	3.20	124	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
EtFOSA	3.47	3.20	108	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
MeFOSE	35.0	32.0	109	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
EtFOSE	37.0	32.0	116	40 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
Labeled Standards	Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS		78.5	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C5-PFPeA	IS		72.8	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C2-4:2 FTS	IS		75.3	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C3-PFBS	IS		75.6	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C5-PFHxA	IS		73.9	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C4-PFHpA	IS		70.9	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C3-HFPO-DA	IS		75.4	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C2-6:2 FTS	IS		74.8	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C8-PFOA	IS		71.6	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C3-PFHxS	IS		76.1	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C9-PFNA	IS		78.4	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C2-8:2 FTS	IS		73.6	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C6-PFDA	IS		77.7	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
d3-MeFOSAA	IS		72.0	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C8-PFOS	IS		74.8	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
d5-EtFOSAA	IS		65.2	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C7-PFUnA	IS		83.2	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C8-PFOSA	IS		51.1	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C2-PFDoA	IS		76.8	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
13C2-PFTeDA	IS		62.6	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
d7-MeFOSE	IS		39.0	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
d3-MeFOSA	IS		35.8	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
d9-EtFOSE	IS		36.3	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1
d5-EtFOSA	IS		30.8	20 - 150		B23K236	05-Dec-23	0.500 L	08-Dec-23 23:32	1

Sample ID: HA-3				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2311186-01	Column:	BEH C18		
Project:	PDX Runway Sampling / 32-23011729	Date Collected:	13-Nov-23 14:39	Date Received:	16-Nov-23 09:04				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	22.4		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFMPA	ND	11.2		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
3:3 FTCA	ND	28.0		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFPeA	ND	11.2		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFMBA	ND	11.2		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFBS	ND	4.97		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
4:2 FTS	ND	21.0		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFHxA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFEESA	ND	9.97		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFPeS	ND	5.24		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
HFPO-DA	ND	23.4		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
NFDHA	ND	11.2		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
5:3 FTCA	ND	140		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFHpA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
ADONA	ND	22.1		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFHxS	ND	5.10		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
6:2 FTS	ND	21.2		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFOA	ND	6.99		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFHpS	ND	5.31		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
7:3 FTCA	ND	140		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFNA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFOSA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFOS	ND	5.21		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
9Cl-PF3ONS	ND	21.8		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFDA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
8:2 FTS	ND	21.5		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFNS	ND	5.38		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
MeFOSAA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
EtFOSAA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFUnA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFDS	ND	5.38		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
11Cl-PF3OUdS	ND	21.0		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFDoA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
MeFOSA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFTTrDA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFDoS	ND	5.42		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
PFTeDA	ND	5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	

Sample ID: HA-3				EPA Method 1633							
Client Data				Laboratory Data							
Name:	Apex Companies, LLC		Matrix:	Water		Lab Sample:	2311186-01		Column:	BEH C18	
Project:	PDX Runway Sampling / 32-23011729			Date Collected:	13-Nov-23 14:39		Date Received:	16-Nov-23 09:04			
Analyte	Conc. (ng/L)			RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
EtFOSA	ND			5.59		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
MeFOSE	ND			55.9		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
EtFOSE	ND			55.9		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
13C4-PFBA	IS	63.2	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C5-PFPeA	IS	62.2	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C2-4:2 FTS	IS	62.8	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C3-PFBS	IS	57.7	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C5-PFHxA	IS	58.2	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C4-PFHpA	IS	58.2	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C3-HFPO-DA	IS	62.6	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C2-6:2 FTS	IS	56.7	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C8-PFOA	IS	58.6	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C3-PFHxS	IS	59.9	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C9-PFNA	IS	60.6	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C2-8:2 FTS	IS	56.7	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C6-PFDA	IS	58.7	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
d3-MeFOSAA	IS	49.5	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C8-PFOS	IS	57.5	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
d5-EtFOSAA	IS	48.8	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C7-PFUnA	IS	53.5	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C8-PFOSA	IS	49.0	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C2-PFDoA	IS	46.4	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
13C2-PFTeDA	IS	44.5	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
d7-MeFOSE	IS	37.5	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
d3-MeFOSA	IS	29.4	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
d9-EtFOSE	IS	38.6	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		
d5-EtFOSA	IS	25.7	20 - 150		B23K236	05-Dec-23	0.143 L	09-Dec-23 00:39	1		

RL - Reporting limit

Results reported to RL.

Sample ID: HA-4				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2311186-02	Column:	BEH C18		
Project:	PDX Runway Sampling / 32-23011729	Date Collected:	13-Nov-23 12:11	Date Received:	16-Nov-23 09:04				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	13.8	6.38		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFMPA	ND	3.19		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
3:3 FTCA	ND	7.97		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFPeA	26.3	3.19		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFMBA	ND	3.19		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFBS	2.47	1.41		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
4:2 FTS	ND	5.98		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFHxA	15.4	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFEESA	ND	2.84		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFPeS	ND	1.49		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
HFPO-DA	ND	6.66		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
NFDHA	ND	3.19		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
5:3 FTCA	ND	39.9		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFHpA	8.86	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
ADONA	ND	6.30		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFHxS	12.0	1.45		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
6:2 FTS	ND	6.05		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFOA	21.3	1.99		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFHpS	ND	1.51		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
7:3 FTCA	ND	39.9		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFNA	3.12	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFOSA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFOS	4.45	1.48		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
9Cl-PF3ONS	ND	6.22		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFDA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
8:2 FTS	ND	6.12		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFNS	ND	1.53		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
MeFOSAA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
EtFOSAA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFUnA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFDS	ND	1.53		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
11Cl-PF3OUdS	ND	5.98		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFDoA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
MeFOSA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFTTrDA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFDoS	ND	1.54		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
PFTeDA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	

Sample ID: HA-4				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2311186-02	Column:	BEH C18		
Project:	PDX Runway Sampling / 32-23011729	Date Collected:	13-Nov-23 12:11	Date Received:	16-Nov-23 09:04				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
EtFOSA	ND	1.59		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
MeFOSE	ND	15.9		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
EtFOSE	ND	15.9		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	61.9	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C5-PFPeA	IS	57.0	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C2-4:2 FTS	IS	68.8	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C3-PFBS	IS	59.7	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C5-PFHxA	IS	58.8	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C4-PFHpA	IS	56.1	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C3-HFPO-DA	IS	58.9	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C2-6:2 FTS	IS	59.8	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C8-PFOA	IS	58.4	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C3-PFHxS	IS	59.6	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C9-PFNA	IS	58.5	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C2-8:2 FTS	IS	54.7	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C6-PFDA	IS	63.5	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
d3-MeFOSAA	IS	55.6	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C8-PFOS	IS	61.1	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
d5-EtFOSAA	IS	53.4	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C7-PFUnA	IS	59.5	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C8-PFOSA	IS	44.4	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C2-PFDoA	IS	51.6	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
13C2-PFTeDA	IS	40.7	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
d7-MeFOSE	IS	40.6	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
d3-MeFOSA	IS	28.5	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
d9-EtFOSE	IS	38.0	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1
d5-EtFOSA	IS	25.7	20 - 150		B23K236	05-Dec-23	0.502 L	09-Dec-23 00:53	1

RL - Reporting limit

Results reported to RL.

Sample ID: Method Blank					PFAS Isotope Dilution Method				
Client Data					Laboratory Data				
Name: Apex Companies, LLC		Matrix: Solid		Lab Sample: B23L024-BLK1		Column: BEH C18			
Project: PDX Runway Sampling / 32-23011729									
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFPeA	2706-90-3	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFBS	375-73-5	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
4:2 FTS	757124-72-4	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFHxA	307-24-4	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFPeS	2706-91-4	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
HFPO-DA	13252-13-6	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFHpA	375-85-9	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
ADONA	919005-14-4	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFHxS	355-46-4	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
6:2 FTS	27619-97-2	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFOA	335-67-1	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFHpS	375-92-8	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFNA	375-95-1	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFOSA	754-91-6	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFOS	1763-23-1	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
9Cl-PF3ONS	756426-58-1	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFDA	335-76-2	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
8:2 FTS	39108-34-4	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFNS	68259-12-1	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
MeFOSAA	2355-31-9	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
EtFOSAA	2991-50-6	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFUnA	2058-94-8	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFDS	335-77-3	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
11Cl-PF3OUdS	763051-92-9	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
10:2 FTS	120226-60-0	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFDoA	307-55-1	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFTTrDA	72629-94-8	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFDoS	79780-39-5	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFTeDA	376-06-7	ND	0.500		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFHxDA	67905-19-5	ND	1.00		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
PFODA	16517-11-6	ND	1.50		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.1	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C3-PFPeA	IS	90.9	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C3-PFBS	IS	86.9	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-4:2 FTS	IS	91.8	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-PFHxA	IS	88.9	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1

Sample ID: Method Blank					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Solid	Lab Sample:	B23L024-BLK1		Column:	BEH C18
Project:	PDX Runway Sampling / 32-23011729								
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-HFPO-DA	IS	92.1	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C4-PFHpA	IS	88.0	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C3-PFHxS	IS	92.2	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-6:2 FTS	IS	94.2	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-PFOA	IS	84.1	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C5-PFNA	IS	79.9	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C8-PFOSA	IS	49.3	10 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C8-PFOS	IS	84.6	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-PFDA	IS	66.4	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-8:2 FTS	IS	80.8	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
d3-MeFOSAA	IS	65.8	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
d5-EtFOSAA	IS	63.3	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-PFUnA	IS	62.1	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-10:2 FTS	IS	72.7	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-PFDoA	IS	61.3	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-PFTeDA	IS	50.3	20 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1
13C2-PFHxDA	IS	32.2	20 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:03	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR
PFAS Isotope Dilution Method

Client Data						Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Solid		Lab Sample:	B23L024-BS1		Column:	BEH C18	
Project:	PDX Runway Sampling / 32-23011729										
Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.68	10.0	96.8	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFPeA	2706-90-3	9.70	10.0	97.0	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFBS	375-73-5	9.24	10.0	92.4	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
4:2 FTS	757124-72-4	10.1	10.0	101	60 - 145		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFHxA	307-24-4	9.61	10.0	96.1	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFPeS	2706-91-4	8.98	10.0	89.8	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
HFPO-DA	13252-13-6	9.69	10.0	96.9	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFHpA	375-85-9	9.63	10.0	96.3	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
ADONA	919005-14-4	9.55	10.0	95.5	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFHxS	355-46-4	9.27	10.0	92.7	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
6:2 FTS	27619-97-2	10.5	10.0	105	60 - 140		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFOA	335-67-1	9.23	10.0	92.3	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFHpS	375-92-8	9.59	10.0	95.9	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFNA	375-95-1	9.16	10.0	91.6	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFOSA	754-91-6	10.2	10.0	102	65 - 140		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFOS	1763-23-1	9.33	10.0	93.3	65 - 140		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
9CI-PF3ONS	756426-58-1	9.10	10.0	91.0	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFDA	335-76-2	10.2	10.0	102	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
8:2 FTS	39108-34-4	9.62	10.0	96.2	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFNS	68259-12-1	7.92	10.0	79.2	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
MeFOSAA	2355-31-9	9.53	10.0	95.3	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
EtFOSAA	2991-50-6	10.6	10.0	106	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFUnA	2058-94-8	9.77	10.0	97.7	65 - 140		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFDS	335-77-3	7.46	10.0	74.6	50 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
11CI-PF3OUdS	763051-92-9	10.8	10.0	108	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
10:2 FTS	120226-60-0	10.1	10.0	101	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFDaA	307-55-1	8.89	10.0	88.9	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFTTrDA	72629-94-8	9.46	10.0	94.6	60 - 140		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFDoS	79780-39-5	12.7	10.0	127	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFTeDA	376-06-7	11.1	10.0	111	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFHxDA	67905-19-5	10.4	10.0	104	65 - 135		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
PFODA	16517-11-6	2.16	10.0	21.6	40 - 130	H	B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		99.3	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1

Sample ID: OPR
PFAS Isotope Dilution Method

Client Data					Laboratory Data				
Name:	Apex Companies, LLC	Matrix:	Solid		Lab Sample:	B23L024-BS1	Column:	BEH C18	
Project:	PDX Runway Sampling / 32-23011729								
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	98.6	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C3-PFBS	IS	100	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-4:2 FTS	IS	95.6	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-PFHxA	IS	96.1	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C3-HFPO-DA	IS	98.7	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C4-PFHpA	IS	96.4	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C3-PFHxS	IS	98.4	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-6:2 FTS	IS	94.7	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-PFOA	IS	92.7	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C5-PFNA	IS	89.8	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C8-PFOSA	IS	46.2	10 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C8-PFOS	IS	95.6	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-PFDA	IS	70.8	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-8:2 FTS	IS	90.9	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
d3-MeFOSAA	IS	57.9	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
d5-EtFOSAA	IS	55.4	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-PFUnA	IS	60.4	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-10:2 FTS	IS	72.2	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-PFDoA	IS	62.3	25 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-PFTeDA	IS	47.2	20 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1
13C2-PFHxDA	IS	26.7	20 - 150		B23L024	05-Dec-23	1.00 g	07-Dec-23 18:13	1

Sample ID: Unsaturated Composite					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2311186-03		Column:	BEH C18
Project:	PDX Runway Sampling / 32-23011729		Date Collected:	13-Nov-23 11:30	Date Received:	16-Nov-23 09:04			
					% Solids:	84.0			
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFPeA	2706-90-3	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFBS	375-73-5	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
4:2 FTS	757124-72-4	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFHxA	307-24-4	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFPeS	2706-91-4	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
HFPO-DA	13252-13-6	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFHpA	375-85-9	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
ADONA	919005-14-4	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFHxS	355-46-4	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
6:2 FTS	27619-97-2	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFOA	335-67-1	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFHpS	375-92-8	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFNA	375-95-1	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFOSA	754-91-6	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFOS	1763-23-1	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
9Cl-PF3ONS	756426-58-1	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFDA	335-76-2	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
8:2 FTS	39108-34-4	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFNS	68259-12-1	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
MeFOSAA	2355-31-9	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
EtFOSAA	2991-50-6	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFUnA	2058-94-8	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFDS	335-77-3	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
11Cl-PF3OUdS	763051-92-9	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
10:2 FTS	120226-60-0	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFDaA	307-55-1	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFTTrDA	72629-94-8	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFDoS	79780-39-5	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFTeDA	376-06-7	ND	0.487		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFHxDA	67905-19-5	ND	0.975		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
PFODA	16517-11-6	ND	1.46		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.7	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C3-PFPeA	IS	89.6	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C3-PFBS	IS	87.2	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-4:2 FTS	IS	97.4	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1

Sample ID: Unsaturated Composite	PFAS Isotope Dilution Method
---	-------------------------------------

Client Data				Laboratory Data			
Name:	Apex Companies, LLC	Matrix:	Soil	Lab Sample:	2311186-03	Column:	BEH C18
Project:	PDX Runway Sampling / 32-23011729	Date Collected:	13-Nov-23 11:30	Date Received:	16-Nov-23 09:04		
				% Solids:	84.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	89.7	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C3-HFPO-DA	IS	86.8	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C4-PFHpA	IS	87.1	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C3-PFHxS	IS	86.5	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-6:2 FTS	IS	94.9	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-PFOA	IS	83.4	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C5-PFNA	IS	74.9	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C8-PFOSA	IS	65.8	10 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C8-PFOS	IS	80.6	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-PFDA	IS	79.7	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-8:2 FTS	IS	85.6	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
d3-MeFOSAA	IS	76.0	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
d5-EtFOSAA	IS	71.7	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-PFUnA	IS	79.6	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-10:2 FTS	IS	78.4	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-PFDoA	IS	86.0	25 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-PFTeDA	IS	53.6	20 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1
13C2-PFHxDA	IS	23.6	20 - 150		B23L024	05-Dec-23	1.22 g	07-Dec-23 20:18	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Saturated Composite					PFAS Isotope Dilution Method					
Client Data					Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2311186-04		Column:	BEH C18	
Project:	PDX Runway Sampling / 32-23011729		Date Collected:	13-Nov-23 11:45	Date Received:	16-Nov-23 09:04				
					% Solids:	68.6				
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	375-22-4	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFPeA	2706-90-3	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFBS	375-73-5	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
4:2 FTS	757124-72-4	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFHxA	307-24-4	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFPeS	2706-91-4	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
HFPO-DA	13252-13-6	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFHpA	375-85-9	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
ADONA	919005-14-4	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFHxS	355-46-4	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
6:2 FTS	27619-97-2	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFOA	335-67-1	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFHpS	375-92-8	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFNA	375-95-1	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFOSA	754-91-6	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFOS	1763-23-1	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
9Cl-PF3ONS	756426-58-1	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFDA	335-76-2	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
8:2 FTS	39108-34-4	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFNS	68259-12-1	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
MeFOSAA	2355-31-9	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
EtFOSAA	2991-50-6	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFUnA	2058-94-8	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFDS	335-77-3	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
11Cl-PF3OUdS	763051-92-9	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
10:2 FTS	120226-60-0	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFDaA	307-55-1	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFTTrDA	72629-94-8	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFDoS	79780-39-5	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFTeDA	376-06-7	ND	0.490		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFHxDA	67905-19-5	ND	0.980		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
PFODA	16517-11-6	ND	1.47		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C3-PFBA	IS	91.7	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C3-PFPeA	IS	92.1	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C3-PFBS	IS	94.5	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-4:2 FTS	IS	97.9	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	

Sample ID: Saturated Composite					PFAS Isotope Dilution Method					
Client Data Name: Apex Companies, LLC Project: PDX Runway Sampling / 32-23011729					Laboratory Data Lab Sample: 2311186-04 Date Received: 16-Nov-23 09:04 % Solids: 68.6 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	IS	93.2	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C3-HFPO-DA	IS	91.9	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C4-PFHpA	IS	92.0	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C3-PFHxS	IS	93.2	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-6:2 FTS	IS	100	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-PFOA	IS	85.1	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C5-PFNA	IS	77.4	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C8-PFOSA	IS	60.5	10 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C8-PFOS	IS	87.5	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-PFDA	IS	70.2	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-8:2 FTS	IS	82.3	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
d3-MeFOSAA	IS	72.7	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
d5-EtFOSAA	IS	68.0	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-PFUnA	IS	75.9	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-10:2 FTS	IS	79.4	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-PFDoA	IS	78.4	25 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-PFTeDA	IS	64.0	20 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	
13C2-PFHxDA	IS	45.0	20 - 150		B23L024	05-Dec-23	1.49 g	07-Dec-23 20:28	1	

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

For EPA 1633

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
I	Ion transition ratio is outside of the acceptance criteria.
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	Recovery and/or RPD was outside laboratory acceptance limits
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

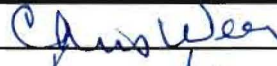
Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

2311186 1.9°C, 1.6°C

 ENTHALPY ANALYTICAL		Chain of Custody Record				Turn Around Time (rush by advanced notice only)							
		Lab No: _____ Page: 1 of 1				Standard: X		5 Day: _____		3 Day: _____			
						2 Day: _____		1 Day: _____		Custom TAT: _____			
#N/A #N/A		Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Water SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other						Preservatives: 1 = Na ₂ S ₂ O ₃ 2 = HCl 3 = HNO ₃ 4 = H ₂ SO ₄ 5 = NaOH 6 = Other				Sample Receipt Temp: (lab use only)	

CUSTOMER INFORMATION			PROJECT INFORMATION				Analysis Request										Test Instructions / Comments							
Company:	Apex Companies, LLC		Name:	PDX Runway Sampling			PFAS by EPA Method 1633	PFAS by Isotope Dilution Method																
Report To:	Carmen Owens		Number:	32-23011729																				
Email:	carmen.owens@apexcos.com		P.O. #:																					
Address:	15618 SW 72nd Ave		Address:	PDX																				
	Tigard, OR 97224																							
Phone:	503-924-4704		Global ID:																					
Fax:			Sampled By:	C. Weer/D. Kolpacki																				
Sample ID		Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.																		
1	HA-3	11/13/23	1439	W	3 x HDPE Various	None	X																	
2	HA-4	11/13/23	1211	W	3x HDPE Various	None	X																	
3	Unsaturated Composite	11/13/23	1130	S	1 x 8oz HDPE	None		X																
4	Saturated Composite	11/13/23	1145	S	1 x 8oz HDPE	None		X																
5	HA-3 Unsaturated (0-5)	11/13/23	1413	S	1 x 8oz HDPE	None		H															H = HOLD for possible follow up analysis	
6	HA-4 Unsaturated (0-5)	11/13/23	1130	S	1 x 8oz HDPE	None		H															H = HOLD for possible follow up analysis	
7	HA-3 Saturated (5-6)	11/13/23	1423	S	1 x 8oz HDPE	None		H															H = HOLD for possible follow up analysis	
8	HA-4 Saturated (5-6)	11/13/23	1145	S	1 x 8oz HDPE	None		H															H = HOLD for possible follow up analysis	
9																								
10																								

	Signature	Print Name	Company / Title	Date / Time
¹ Relinquished By:		Christine Weer	Apex Companies LLC, Scientist 2	1600
¹ Received By:		Karen Y. Acosta	Enthalpy EDIT	11/16/23 09:09
² Relinquished By:				
² Received By:				
³ Relinquished By:				
³ Received By:				

Sample Log-In Checklist



Page # 1 of 2

Work Order #: 2311186 TAT SH

Samples Arrival:	Date/Time <u>11/16/23 09:04</u>	Initials: <u>K2</u>	Location: <u>WR-2</u>
Shelf/Rack: <u>WR</u>			
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
	☐ GLS	☐ DHL	☐ Hand Delivered
	☐ Other		
Preservation:	☒ Ice	☐ Blue Ice	☐ Techni Ice
	☐ Dry Ice	☐ None	
Temp °C: <u>1.9</u> (uncorrected)	Probe used: Y / ☒ N		Thermometer ID: <u>IR-4</u>
Temp °C: <u>1.9</u> (corrected)			

	YES	NO	NA
Shipping Container(s) Intact?	☒	☐	☐
Shipping Custody Seals Intact?	☒	☐	☐
Airbill <u>1092</u> Trk # <u>7741 2488 8365</u>	☒	☐	☐
Shipping Documentation Present?	☒	☐	☐
Shipping Container	☒ Enthalpy	Client	☒ Retain
	☐ Return	☐ Dispose	
Chain of Custody / Sample Documentation Present?	☒	☐	☐
Chain of Custody / Sample Documentation Complete?	☒	☐	☐
Holding Time Acceptable?	☒	☐	☐
Logged In:	Date/Time <u>11/22/23 09:35</u>	Initials: <u>K2</u>	Location: <u>R-9, WF-2, K-1</u>
Shelf/Rack: <u>WR, D-5, K-3</u>			
COC Anomaly/Sample Acceptance Form completed?		☒	☐

Comments:

Sample Log-In Checklist



Page # 2 of 2

Work Order #: 2311186 TAT 5/1

Samples Arrival:	Date/Time <u>11/16/23 09:04</u>		Initials: <u>1/2</u>		Location: <u>WR-2</u>		
					Shelf/Rack: <u>WR</u>		
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac	☐ GLS	☐ DHL	☐ Hand Delivered	☐ Other
Preservation:	☒ Ice		☐ Blue Ice		☐ Techni Ice	☐ Dry Ice	☐ None
Temp °C: <u>1.6</u> (uncorrected)	Probe used: Y / ☒ N				Thermometer ID: <u>IR-4</u>		
Temp °C: <u>1.6</u> (corrected)							

	YES	NO	NA
Shipping Container(s) Intact?	☒	☐	☐
Shipping Custody Seals Intact?	☒	☐	☐
Airbill <u>2082</u> Trk # <u>7741 2488 8376</u>	☒	☐	☐
Shipping Documentation Present?	☒	☐	☐
Shipping Container	☒ Enthalpy	☐ Client	☒ Retain
	☐ Return	☐ Dispose	
Chain of Custody / Sample Documentation Present?	☒	☐	☐
Chain of Custody / Sample Documentation Complete?	☒	☐	☐
Holding Time Acceptable?	☒	☐	☐
Logged In:	Date/Time <u>11/20/23 09:35</u>		Initials: <u>1/2</u>
	Location: <u>R-9, WF-2, WR-1</u>		Shelf/Rack: <u>WR, D-5, K-3</u>
COC Anomaly/Sample Acceptance Form completed?			
	☒	☐	☐

Comments:

CoC/Label Reconciliation Report WO# 2311186

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2311186-01	A HA-3	☒	13-Nov-23 14:39	☐ A	HDPE Bottle, 500 mL	Aqueous
2311186-01	B HA-3	☒	13-Nov-23 14:39	☐	HDPE Bottle, 500 mL	Aqueous
2311186-01	C HA-3	☒	13-Nov-23 14:39	☐	HDPE Bottle, 125 mL	Aqueous
2311186-02	A HA-4	☒	13-Nov-23 12:11	☒	HDPE Bottle, 500 mL	Aqueous
2311186-02	B HA-4	☒	13-Nov-23 12:11	☒	HDPE Bottle, 500 mL	Aqueous
2311186-02	C HA-4	☒	13-Nov-23 12:11	☒	HDPE Bottle, 125 mL	Aqueous
2311186-03	A Unsaturated Composite	☒	13-Nov-23 11:30	☐ B	HDPE Bottle, 250 mL	Solid
2311186-04	A Saturated Composite	☒	13-Nov-23 11:45	☐	HDPE Bottle, 250 mL	Solid
2311186-05	A HA-3 Unsaturated (0-5)	☒	13-Nov-23 14:13	☒	HDPE Bottle, 250 mL	Solid
2311186-06	A HA-4 Unsaturated (0-5)	☐ C	13-Nov-23 11:30	☒	HDPE Bottle, 250 mL	Solid
2311186-07	A HA-3 Saturated (5-6)	☒	13-Nov-23 14:23	☒	HDPE Bottle, 250 mL	Solid
2311186-08	A HA-4 Saturated (5-6)	☒	13-Nov-23 11:45	☒	HDPE Bottle, 250 mL	Solid

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	☒	☐	☐
Sample Custody Seals Intact?	☐	☐	☒
Adequate Sample Volume?	☒	☐	☐
Container Type Appropriate for Analysis(es)	☒	☐	☐

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None Other

Verified by/Date: JS 11/22/23
MUS 11/22/23

Comments:
 A Sample label time is 14:38.
 B Sample label time reads 14:30.
 C Sample label ID: HA-4 Saturated (5-6)
 D Sample contain light color and ~5% particulate.
 E Sample contains dark color and 10% particulate.

ANOMALY FORM

Work Order #

2311186

Initial/Date The following checked issues were noted during sample receipt and login:

- _____ ☐ 1. The samples were received out of temperature at (WI-PHT): _____
Was Ice present: Yes No Melted Blue Ice
- _____ ☐ 2. The Chain-of-Custody (CoC) was not relinquished properly.
- _____ ☐ 3. The CoC did not include collection time(s). 00:00 will be used unless notified otherwise.
- _____ ☐ 4. The sample(s) did not include a sample collection time. All or Sample Name: _____
- 16.11.2023 ☒ 5. A sample ID discrepancy was found. See the Reconciliation report.
The CoC Sample ID will be used unless notified otherwise.
- _____ ☐ 6. A sample date and/or time discrepancy was found. See the Reconciliation report.
The CoC Sample date/time will be used unless notified otherwise.
- _____ ☐ 7. The CoC did not include a sample matrix. The following sample matrix will be used: _____
- _____ ☐ 8. Insufficient volume received for analysis. All or Sample Name: _____
- _____ ☐ 9. The backup bottle was received broken. Sample Name: _____
- _____ ☐ 10. CoC not received, illegible or destroyed.
- _____ ☐ 11. The sample(s) were received out of holding time. All or Sample Name: _____
- _____ ☐ 12. The CoC did not include an analysis. All or Sample Name: _____
- _____ ☐ 13. Sample(s) received without collection date. All or Sample Name: _____
- _____ ☐ 14. Sample(s) not received. All or Sample Name: _____
- _____ ☐ 15. Sample(s) received broken. All or Sample Name: _____
- _____ ☐ 16. An incorrect container-type was used. All or Sample Name: _____
- _____ ☐ 17. The Field Reagent Blank (FRB) preservative was from a different lot than the field samples.
Will proceed with analysis and narrate unless notified otherwise.
- _____ ☐ 18. Other: _____

Bolded items require sign-off

Client Contacted: _____

Date of Contact: _____

Lab Project Manager: _____

Resolution: _____



January 09, 2024

**Enthalpy Analytical - El Dorado Hills
Work Order No. 2312043**

Ms. Carmen Owens
Apex Companies, LLC
3015 SW First Avenue
Portland, OR 97201

Dear Ms. Owens,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on December 06, 2023 under your Project Name 'PDX Borings / 32-23011729'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at kathy.zipp@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

Kathy Zipp
Project Manager

Enthalpy Analytical - EDH certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Enthalpy Analytical - EDH.

Enthalpy Analytical - EDH Work Order No. 2312043

Case Narrative

Sample Condition on Receipt:

Twelve soil samples and five water samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:

PFAS Isotope Dilution Method

The samples were extracted and analyzed for a selected list of PFAS using Enthalpy Analytical - EDH's Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the Reporting Limits (RL). The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

Draft EPA Method 1633 (Aqueous)

The samples were extracted and analyzed for a selected list of PFAS using Draft EPA Method 1633. The results for PFHxS, PFOA, PFOSA, PFOS, MeFOSAA, EtFOSAA, MeFOSA, MeFOSE, EtFOSA, EtFOSE include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank, Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) and Low-Level Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation

batch. No analytes were detected in the Method Blank above 1/2 the LOQ concentration. The OPR recoveries were within the method acceptance criteria.

All samples contained >50 mg of particulate and a subsample of each sample was taken for extraction.

The labeled standard recoveries outside the acceptance criteria are flagged with an "Q" qualifier.

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Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2312043-01	B-1 unsaturated	04-Dec-23 12:05	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-02	B-1 saturated	04-Dec-23 12:20	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-03	B-2 unsaturated	04-Dec-23 10:35	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-04	B-2 saturated	04-Dec-23 10:40	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-05	B-3 unsaturated	04-Dec-23 09:00	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-06	B-3 saturated	04-Dec-23 09:05	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-07	B-4 unsaturated	04-Dec-23 14:00	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-08	B-4 saturated	04-Dec-23 14:05	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-09	B-5 unsaturated	04-Dec-23 15:30	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-10	B-5 saturated	04-Dec-23 15:35	06-Dec-23 09:34	HDPE Jar, 6 oz
2312043-11	Composite - unsaturated	04-Dec-23 16:30	06-Dec-23 09:34	HDPE Bottle, 1L
2312043-12	Composite - saturated	04-Dec-23 16:35	06-Dec-23 09:34	HDPE Bottle, 1L
2312043-13	B-1	04-Dec-23 12:35	06-Dec-23 09:34	HDPE Bottle, 500 mL HDPE Bottle, 500 mL HDPE Bottle, 125 mL
2312043-14	B-2	04-Dec-23 11:05	06-Dec-23 09:34	HDPE Bottle, 500 mL HDPE Bottle, 500 mL HDPE Bottle, 125 mL
2312043-15	B-3	04-Dec-23 09:35	06-Dec-23 09:34	HDPE Bottle, 500 mL HDPE Bottle, 500 mL HDPE Bottle, 125 mL
2312043-16	B-4	04-Dec-23 14:15	06-Dec-23 09:34	HDPE Bottle, 500 mL HDPE Bottle, 500 mL HDPE Bottle, 125 mL
2312043-17	B-5	04-Dec-23 15:50	06-Dec-23 09:34	HDPE Bottle, 500 mL HDPE Bottle, 500 mL HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank					PFAS Isotope Dilution Method				
Client Data					Laboratory Data				
Name: Apex Companies, LLC		Matrix: Solid		Lab Sample: B23L230-BLK1		Column: BEH C18			
Project: PDX Borings / 32-23011729									
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFPeA	2706-90-3	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFBS	375-73-5	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
4:2 FTS	757124-72-4	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFHxA	307-24-4	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFPeS	2706-91-4	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
HFPO-DA	13252-13-6	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFHpA	375-85-9	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
ADONA	919005-14-4	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFHxS	355-46-4	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
6:2 FTS	27619-97-2	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFOA	335-67-1	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFHpS	375-92-8	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFNA	375-95-1	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFOSA	754-91-6	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFOS	1763-23-1	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
9Cl-PF3ONS	756426-58-1	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFDA	335-76-2	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
8:2 FTS	39108-34-4	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFNS	68259-12-1	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
MeFOSAA	2355-31-9	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
EtFOSAA	2991-50-6	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFUnA	2058-94-8	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFDS	335-77-3	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
11Cl-PF3OUdS	763051-92-9	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
10:2 FTS	120226-60-0	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFDoA	307-55-1	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFTTrDA	72629-94-8	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFDoS	79780-39-5	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFTeDA	376-06-7	ND	0.500		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFHxDA	67905-19-5	ND	1.00		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
PFODA	16517-11-6	ND	1.50		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.5	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
13C3-PFPeA	IS	90.9	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
13C3-PFBS	IS	94.3	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
13C2-4:2 FTS	IS	86.6	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1
13C2-PFHxA	IS	90.0	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1

Sample ID: Method Blank					PFAS Isotope Dilution Method					
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729					Laboratory Data Lab Sample: B23L230-BLK1 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C3-HFPO-DA	IS	89.2	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C4-PFHpA	IS	89.8	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C3-PFHxS	IS	89.9	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-6:2 FTS	IS	112	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-PFOA	IS	86.2	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C5-PFNA	IS	82.0	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C8-PFOSA	IS	56.8	10 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C8-PFOS	IS	91.9	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-PFDA	IS	72.3	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-8:2 FTS	IS	88.6	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
d3-MeFOSAA	IS	67.3	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
d5-EtFOSAA	IS	59.8	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-PFUnA	IS	70.5	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-10:2 FTS	IS	88.5	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-PFDoA	IS	64.5	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-PFTeDA	IS	64.3	20 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	
13C2-PFHxDA	IS	57.8	20 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:12	1	

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR
PFAS Isotope Dilution Method

Client Data						Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Solid			Lab Sample:	B23L230-BS1	Column:	BEH C18		
Project:	PDX Borings / 32-23011729										
Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.87	10.0	98.7	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFPeA	2706-90-3	9.72	10.0	97.2	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFBS	375-73-5	10.4	10.0	104	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
4:2 FTS	757124-72-4	9.80	10.0	98.0	60 - 145		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFHxA	307-24-4	9.42	10.0	94.2	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFPeS	2706-91-4	10.1	10.0	101	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
HFPO-DA	13252-13-6	9.76	10.0	97.6	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFHpA	375-85-9	9.82	10.0	98.2	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
ADONA	919005-14-4	9.70	10.0	97.0	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFHxS	355-46-4	9.49	10.0	94.9	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
6:2 FTS	27619-97-2	9.64	10.0	96.4	60 - 140		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFOA	335-67-1	10.1	10.0	101	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFHpS	375-92-8	9.52	10.0	95.2	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFNA	375-95-1	9.44	10.0	94.4	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFOSA	754-91-6	8.87	10.0	88.7	65 - 140		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFOS	1763-23-1	9.36	10.0	93.6	65 - 140		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
9Cl-PF3ONS	756426-58-1	9.97	10.0	99.7	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFDA	335-76-2	9.75	10.0	97.5	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
8:2 FTS	39108-34-4	8.81	10.0	88.1	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFNS	68259-12-1	9.49	10.0	94.9	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
MeFOSAA	2355-31-9	10.1	10.0	101	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
EtFOSAA	2991-50-6	9.02	10.0	90.2	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFUnA	2058-94-8	9.28	10.0	92.8	65 - 140		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFDS	335-77-3	8.98	10.0	89.8	50 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
11Cl-PF3OUdS	763051-92-9	11.9	10.0	119	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
10:2 FTS	120226-60-0	8.56	10.0	85.6	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFDaA	307-55-1	9.36	10.0	93.6	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFTTrDA	72629-94-8	8.77	10.0	87.7	60 - 140		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFDoS	79780-39-5	11.7	10.0	117	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFTeDA	376-06-7	9.57	10.0	95.7	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFHxDA	67905-19-5	9.59	10.0	95.9	65 - 135		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
PFODA	16517-11-6	8.09	10.0	80.9	40 - 130		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
Labeled Standards	Type			% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS			89.8	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1

Sample ID: OPR
PFAS Isotope Dilution Method

Client Data					Laboratory Data				
Name:	Apex Companies, LLC	Matrix:	Solid		Lab Sample:	B23L230-BS1	Column:	BEH C18	
Project:	PDX Borings / 32-23011729								
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFPeA	IS	93.5	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C3-PFBS	IS	87.1	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-4:2 FTS	IS	89.3	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-PFHxA	IS	92.7	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C3-HFPO-DA	IS	89.7	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C4-PFHpA	IS	89.7	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C3-PFHxS	IS	94.4	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-6:2 FTS	IS	107	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-PFOA	IS	87.9	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C5-PFNA	IS	82.3	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C8-PFOSA	IS	56.0	10 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C8-PFOS	IS	89.0	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-PFDA	IS	71.0	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-8:2 FTS	IS	90.1	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
d3-MeFOSAA	IS	65.4	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
d5-EtFOSAA	IS	61.5	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-PFUnA	IS	72.0	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-10:2 FTS	IS	87.2	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-PFDoA	IS	65.2	25 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-PFTeDA	IS	56.4	20 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1
13C2-PFHxDA	IS	37.4	20 - 150		B23L230	27-Dec-23	1.00 g	29-Dec-23 16:22	1

Sample ID: B-1 unsaturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-01		Column:	BEH C18
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 12:05	Date Received:	06-Dec-23 09:34			
					% Solids:	86.0			
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFPeA	2706-90-3	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFBS	375-73-5	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
4:2 FTS	757124-72-4	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFHxA	307-24-4	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFPeS	2706-91-4	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
HFPO-DA	13252-13-6	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFHpA	375-85-9	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
ADONA	919005-14-4	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFHxS	355-46-4	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
6:2 FTS	27619-97-2	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFOA	335-67-1	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFHpS	375-92-8	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFNA	375-95-1	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFOSA	754-91-6	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFOS	1763-23-1	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
9Cl-PF3ONS	756426-58-1	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFDA	335-76-2	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
8:2 FTS	39108-34-4	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFNS	68259-12-1	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
MeFOSAA	2355-31-9	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
EtFOSAA	2991-50-6	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFUnA	2058-94-8	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFDS	335-77-3	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
11Cl-PF3OUdS	763051-92-9	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
10:2 FTS	120226-60-0	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFDaA	307-55-1	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFTTrDA	72629-94-8	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFDoS	79780-39-5	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFTeDA	376-06-7	ND	0.501		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFHxDA	67905-19-5	ND	1.00		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
PFODA	16517-11-6	ND	1.50		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.3	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
13C3-PFPeA	IS	87.1	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
13C3-PFBS	IS	94.8	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1
13C2-4:2 FTS	IS	89.3	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1

Sample ID: B-1 unsaturated					PFAS Isotope Dilution Method					
Client Data					Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-01		Column:	BEH C18	
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 12:05	Date Received:	06-Dec-23 09:34				
					% Solids:	86.0				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	IS	89.2	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C3-HFPO-DA	IS	84.8	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C4-PFHpA	IS	87.3	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C3-PFHxS	IS	94.8	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-6:2 FTS	IS	114	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-PFOA	IS	87.8	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C5-PFNA	IS	81.1	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C8-PFOSA	IS	53.9	10 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C8-PFOS	IS	85.8	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-PFDA	IS	75.6	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-8:2 FTS	IS	87.3	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
d3-MeFOSAA	IS	75.8	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
d5-EtFOSAA	IS	70.5	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-PFUnA	IS	76.7	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-10:2 FTS	IS	83.9	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-PFDoA	IS	72.8	25 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-PFTeDA	IS	74.7	20 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	
13C2-PFHxDA	IS	52.1	20 - 150		B23L230	27-Dec-23	1.16 g	29-Dec-23 16:33	1	

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-1 saturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-02	Column:	BEH C18	
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 12:20	Date Received:	06-Dec-23 09:34			
					% Solids:	68.8			
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFPeA	2706-90-3	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFBS	375-73-5	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
4:2 FTS	757124-72-4	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFHxA	307-24-4	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFPeS	2706-91-4	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
HFPO-DA	13252-13-6	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFHpA	375-85-9	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
ADONA	919005-14-4	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFHxS	355-46-4	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
6:2 FTS	27619-97-2	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFOA	335-67-1	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFHpS	375-92-8	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFNA	375-95-1	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFOSA	754-91-6	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFOS	1763-23-1	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
9Cl-PF3ONS	756426-58-1	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFDA	335-76-2	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
8:2 FTS	39108-34-4	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFNS	68259-12-1	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
MeFOSAA	2355-31-9	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
EtFOSAA	2991-50-6	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFUnA	2058-94-8	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFDS	335-77-3	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
11Cl-PF3OUdS	763051-92-9	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
10:2 FTS	120226-60-0	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFDoA	307-55-1	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFTTrDA	72629-94-8	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFDoS	79780-39-5	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFTeDA	376-06-7	ND	0.501		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFHxDA	67905-19-5	ND	1.00		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
PFODA	16517-11-6	ND	1.50		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.0	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C3-PFPeA	IS	92.6	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C3-PFBS	IS	90.9	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-4:2 FTS	IS	93.8	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1

Sample ID: B-1 saturated					PFAS Isotope Dilution Method				
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729 Matrix: Soil Date Collected: 04-Dec-23 12:20				Laboratory Data					
				Lab Sample: 2312043-02		Column: BEH C18			
				Date Received: 06-Dec-23 09:34					
				% Solids: 68.8					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	91.2	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C3-HFPO-DA	IS	89.6	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C4-PFHpA	IS	90.3	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C3-PFHxS	IS	94.7	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-6:2 FTS	IS	108	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-PFOA	IS	84.8	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C5-PFNA	IS	77.9	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C8-PFOSA	IS	70.7	10 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C8-PFOS	IS	89.2	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-PFDA	IS	70.4	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-8:2 FTS	IS	87.8	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
d3-MeFOSAA	IS	75.8	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
d5-EtFOSAA	IS	73.5	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-PFUnA	IS	79.9	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-10:2 FTS	IS	79.6	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-PFDoA	IS	75.3	25 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-PFTeDA	IS	55.9	20 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1
13C2-PFHxDA	IS	25.7	20 - 150		B23L230	27-Dec-23	1.45 g	29-Dec-23 16:43	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-2 unsaturated					PFAS Isotope Dilution Method				
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729 Matrix: Soil Date Collected: 04-Dec-23 10:35				Laboratory Data					
				Lab Sample:	2312043-03	Column:	BEH C18		
				Date Received:	06-Dec-23 09:34				
				% Solids:	86.8				
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFPeA	2706-90-3	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFBS	375-73-5	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
4:2 FTS	757124-72-4	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFHxA	307-24-4	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFPeS	2706-91-4	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
HFPO-DA	13252-13-6	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFHpA	375-85-9	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
ADONA	919005-14-4	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFHxS	355-46-4	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
6:2 FTS	27619-97-2	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFOA	335-67-1	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFHpS	375-92-8	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFNA	375-95-1	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFOSA	754-91-6	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFOS	1763-23-1	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
9Cl-PF3ONS	756426-58-1	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFDA	335-76-2	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
8:2 FTS	39108-34-4	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFNS	68259-12-1	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
MeFOSAA	2355-31-9	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
EtFOSAA	2991-50-6	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFUnA	2058-94-8	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFDS	335-77-3	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
11Cl-PF3OUdS	763051-92-9	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
10:2 FTS	120226-60-0	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFDoA	307-55-1	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFTTrDA	72629-94-8	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFDoS	79780-39-5	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFTeDA	376-06-7	ND	0.488		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFHxDA	67905-19-5	ND	0.977		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
PFODA	16517-11-6	ND	1.46		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.5	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C3-PFPeA	IS	98.0	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C3-PFBS	IS	101	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-4:2 FTS	IS	93.5	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1

Sample ID: B-2 unsaturated	PFAS Isotope Dilution Method
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Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729	Laboratory Data Matrix: Soil Date Collected: 04-Dec-23 10:35 Lab Sample: 2312043-03 Date Received: 06-Dec-23 09:34 Column: BEH C18 % Solids: 86.8
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	97.5	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C3-HFPO-DA	IS	94.7	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C4-PFHpA	IS	97.2	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C3-PFHxS	IS	97.6	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-6:2 FTS	IS	114	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-PFOA	IS	89.5	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C5-PFNA	IS	85.3	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C8-PFOSA	IS	68.3	10 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C8-PFOS	IS	95.4	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-PFDA	IS	76.6	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-8:2 FTS	IS	90.5	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
d3-MeFOSAA	IS	79.1	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
d5-EtFOSAA	IS	73.3	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-PFUnA	IS	84.8	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-10:2 FTS	IS	84.8	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-PFDoA	IS	78.9	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-PFTeDA	IS	73.0	20 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1
13C2-PFHxDA	IS	39.0	20 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 16:54	1

RL - Reporting limit

The results are reported in dry weight.
 The sample size is reported in wet weight.
 Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-2 saturated					PFAS Isotope Dilution Method					
Client Data					Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-04		Column:	BEH C18	
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 10:40	Date Received:	06-Dec-23 09:34				
					% Solids:	70.9				
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	375-22-4	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFPeA	2706-90-3	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFBS	375-73-5	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
4:2 FTS	757124-72-4	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFHxA	307-24-4	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFPeS	2706-91-4	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
HFPO-DA	13252-13-6	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFHpA	375-85-9	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
ADONA	919005-14-4	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFHxS	355-46-4	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
6:2 FTS	27619-97-2	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFOA	335-67-1	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFHpS	375-92-8	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFNA	375-95-1	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFOSA	754-91-6	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFOS	1763-23-1	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
9Cl-PF3ONS	756426-58-1	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFDA	335-76-2	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
8:2 FTS	39108-34-4	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFNS	68259-12-1	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
MeFOSAA	2355-31-9	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
EtFOSAA	2991-50-6	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFUnA	2058-94-8	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFDS	335-77-3	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
11Cl-PF3OUdS	763051-92-9	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
10:2 FTS	120226-60-0	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFDaA	307-55-1	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFTTrDA	72629-94-8	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFDoS	79780-39-5	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFTeDA	376-06-7	ND	0.483		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFHxDA	67905-19-5	ND	0.966		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
PFODA	16517-11-6	ND	1.45		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C3-PFBA	IS	97.7	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
13C3-PFPeA	IS	102	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
13C3-PFBS	IS	98.7	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	
13C2-4:2 FTS	IS	98.2	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1	

Sample ID: B-2 saturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-04		Column:	BEH C18
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 10:40	Date Received:	06-Dec-23 09:34			
					% Solids:	70.9			
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	102	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C3-HFPO-DA	IS	97.1	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C4-PFHpA	IS	98.6	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C3-PFHxS	IS	103	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-6:2 FTS	IS	109	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-PFOA	IS	97.3	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C5-PFNA	IS	87.4	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C8-PFOSA	IS	69.2	10 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C8-PFOS	IS	96.1	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-PFDA	IS	76.9	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-8:2 FTS	IS	87.9	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
d3-MeFOSAA	IS	82.5	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
d5-EtFOSAA	IS	77.1	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-PFUnA	IS	85.6	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-10:2 FTS	IS	89.2	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-PFDoA	IS	81.1	25 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-PFTeDA	IS	84.3	20 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1
13C2-PFHxDA	IS	59.3	20 - 150		B23L230	27-Dec-23	1.46 g	29-Dec-23 17:04	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-3 unsaturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-05		Column:	BEH C18
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 09:00	Date Received:	06-Dec-23 09:34			
					% Solids:	88.0			
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFPeA	2706-90-3	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFBS	375-73-5	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
4:2 FTS	757124-72-4	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFHxA	307-24-4	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFPeS	2706-91-4	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
HFPO-DA	13252-13-6	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFHpA	375-85-9	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
ADONA	919005-14-4	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFHxS	355-46-4	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
6:2 FTS	27619-97-2	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFOA	335-67-1	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFHpS	375-92-8	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFNA	375-95-1	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFOSA	754-91-6	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFOS	1763-23-1	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
9Cl-PF3ONS	756426-58-1	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFDA	335-76-2	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
8:2 FTS	39108-34-4	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFNS	68259-12-1	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
MeFOSAA	2355-31-9	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
EtFOSAA	2991-50-6	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFUnA	2058-94-8	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFDS	335-77-3	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
11Cl-PF3OUdS	763051-92-9	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
10:2 FTS	120226-60-0	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFDaA	307-55-1	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFTTrDA	72629-94-8	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFDoS	79780-39-5	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFTeDA	376-06-7	ND	0.481		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFHxDA	67905-19-5	ND	0.963		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
PFODA	16517-11-6	ND	1.44		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.6	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C3-PFPeA	IS	91.9	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C3-PFBS	IS	90.1	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-4:2 FTS	IS	78.2	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1

Sample ID: B-3 unsaturated **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Apex Companies, LLC	Matrix:	Soil	Lab Sample:	2312043-05	Column:	BEH C18
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 09:00	Date Received:	06-Dec-23 09:34		
				% Solids:	88.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	91.7	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C3-HFPO-DA	IS	89.6	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C4-PFHpA	IS	88.7	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C3-PFHxS	IS	94.9	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-6:2 FTS	IS	107	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-PFOA	IS	85.8	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C5-PFNA	IS	81.9	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C8-PFOSA	IS	56.7	10 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C8-PFOS	IS	88.3	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-PFDA	IS	71.1	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-8:2 FTS	IS	93.5	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
d3-MeFOSAA	IS	74.6	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
d5-EtFOSAA	IS	68.6	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-PFUnA	IS	71.9	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-10:2 FTS	IS	79.7	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-PFDoA	IS	72.8	25 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-PFTeDA	IS	67.8	20 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1
13C2-PFHxDA	IS	53.0	20 - 150		B23L230	27-Dec-23	1.18 g	29-Dec-23 17:14	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-3 saturated					PFAS Isotope Dilution Method				
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729 Matrix: Soil Date Collected: 04-Dec-23 09:05					Laboratory Data Lab Sample: 2312043-06 Date Received: 06-Dec-23 09:34 % Solids: 72.1 Column: BEH C18				
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFPeA	2706-90-3	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFBS	375-73-5	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
4:2 FTS	757124-72-4	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFHxA	307-24-4	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFPeS	2706-91-4	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
HFPO-DA	13252-13-6	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFHpA	375-85-9	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
ADONA	919005-14-4	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFHxS	355-46-4	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
6:2 FTS	27619-97-2	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFOA	335-67-1	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFHpS	375-92-8	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFNA	375-95-1	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFOSA	754-91-6	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFOS	1763-23-1	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
9Cl-PF3ONS	756426-58-1	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFDA	335-76-2	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
8:2 FTS	39108-34-4	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFNS	68259-12-1	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
MeFOSAA	2355-31-9	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
EtFOSAA	2991-50-6	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFUnA	2058-94-8	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFDS	335-77-3	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
11Cl-PF3OUdS	763051-92-9	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
10:2 FTS	120226-60-0	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFDoA	307-55-1	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFTTrDA	72629-94-8	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFDoS	79780-39-5	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFTeDA	376-06-7	ND	0.485		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFHxDA	67905-19-5	ND	0.970		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
PFODA	16517-11-6	ND	1.46		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.7	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C3-PFPeA	IS	90.5	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C3-PFBS	IS	89.9	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-4:2 FTS	IS	89.4	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1

Sample ID: B-3 saturated **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Apex Companies, LLC	Matrix:	Soil	Lab Sample:	2312043-06	Column:	BEH C18
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 09:05	Date Received:	06-Dec-23 09:34		
				% Solids:	72.1		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	87.5	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C3-HFPO-DA	IS	86.2	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C4-PFHpA	IS	85.7	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C3-PFHxS	IS	94.2	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-6:2 FTS	IS	108	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-PFOA	IS	87.2	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C5-PFNA	IS	82.4	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C8-PFOSA	IS	60.8	10 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C8-PFOS	IS	89.3	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-PFDA	IS	72.5	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-8:2 FTS	IS	79.3	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
d3-MeFOSAA	IS	77.1	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
d5-EtFOSAA	IS	79.0	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-PFUnA	IS	80.3	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-10:2 FTS	IS	92.7	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-PFDoA	IS	74.7	25 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-PFTeDA	IS	78.5	20 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1
13C2-PFHxDA	IS	62.0	20 - 150		B23L230	27-Dec-23	1.43 g	29-Dec-23 17:25	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-4 unsaturated					PFAS Isotope Dilution Method					
Client Data					Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-07		Column:	BEH C18	
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 14:00	Date Received:	06-Dec-23 09:34				
					% Solids:	85.3				
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	375-22-4	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFPeA	2706-90-3	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFBS	375-73-5	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
4:2 FTS	757124-72-4	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFHxA	307-24-4	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFPeS	2706-91-4	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
HFPO-DA	13252-13-6	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFHpA	375-85-9	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
ADONA	919005-14-4	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFHxS	355-46-4	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
6:2 FTS	27619-97-2	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFOA	335-67-1	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFHpS	375-92-8	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFNA	375-95-1	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFOSA	754-91-6	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFOS	1763-23-1	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
9Cl-PF3ONS	756426-58-1	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFDA	335-76-2	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
8:2 FTS	39108-34-4	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFNS	68259-12-1	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
MeFOSAA	2355-31-9	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
EtFOSAA	2991-50-6	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFUnA	2058-94-8	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFDS	335-77-3	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
11Cl-PF3OUdS	763051-92-9	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
10:2 FTS	120226-60-0	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFDaA	307-55-1	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFTTrDA	72629-94-8	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFDoS	79780-39-5	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFTeDA	376-06-7	ND	0.488		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFHxDA	67905-19-5	ND	0.977		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
PFODA	16517-11-6	ND	1.47		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C3-PFBA	IS	94.4	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
13C3-PFPeA	IS	97.7	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
13C3-PFBS	IS	89.9	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	
13C2-4:2 FTS	IS	99.5	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1	

Sample ID: B-4 unsaturated	PFAS Isotope Dilution Method
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Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729	Laboratory Data Lab Sample: 2312043-07 Date Received: 06-Dec-23 09:34 % Solids: 85.3 Matrix: Soil Date Collected: 04-Dec-23 14:00 Column: BEH C18
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	96.5	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C3-HFPO-DA	IS	89.6	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C4-PFHpA	IS	93.2	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C3-PFHxS	IS	95.1	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-6:2 FTS	IS	116	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-PFOA	IS	89.4	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C5-PFNA	IS	83.8	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C8-PFOSA	IS	73.9	10 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C8-PFOS	IS	89.0	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-PFDA	IS	76.2	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-8:2 FTS	IS	96.8	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
d3-MeFOSAA	IS	79.1	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
d5-EtFOSAA	IS	77.3	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-PFUnA	IS	75.9	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-10:2 FTS	IS	87.4	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-PFDoA	IS	79.1	25 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-PFTeDA	IS	65.3	20 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1
13C2-PFHxDA	IS	39.8	20 - 150		B23L230	27-Dec-23	1.20 g	29-Dec-23 17:35	1

RL - Reporting limit

The results are reported in dry weight.
 The sample size is reported in wet weight.
 Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-4 saturated					PFAS Isotope Dilution Method				
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729 Matrix: Soil Date Collected: 04-Dec-23 14:05				Laboratory Data					
				Lab Sample: 2312043-08		Column: BEH C18			
				Date Received: 06-Dec-23 09:34					
				% Solids: 74.0					
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFPeA	2706-90-3	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFBS	375-73-5	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
4:2 FTS	757124-72-4	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFHxA	307-24-4	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFPeS	2706-91-4	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
HFPO-DA	13252-13-6	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFHpA	375-85-9	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
ADONA	919005-14-4	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFHxS	355-46-4	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
6:2 FTS	27619-97-2	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFOA	335-67-1	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFHpS	375-92-8	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFNA	375-95-1	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFOSA	754-91-6	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFOS	1763-23-1	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
9Cl-PF3ONS	756426-58-1	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFDA	335-76-2	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
8:2 FTS	39108-34-4	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFNS	68259-12-1	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
MeFOSAA	2355-31-9	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
EtFOSAA	2991-50-6	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFUnA	2058-94-8	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFDS	335-77-3	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
11Cl-PF3OUdS	763051-92-9	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
10:2 FTS	120226-60-0	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFDaA	307-55-1	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFTTrDA	72629-94-8	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFDoS	79780-39-5	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFTeDA	376-06-7	ND	0.490		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFHxDA	67905-19-5	ND	0.980		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
PFODA	16517-11-6	ND	1.47		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.0	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C3-PFPeA	IS	93.1	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C3-PFBS	IS	92.7	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-4:2 FTS	IS	79.0	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1

Sample ID: B-4 saturated	PFAS Isotope Dilution Method
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Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729 Matrix: Soil Date Collected: 04-Dec-23 14:05	Laboratory Data Lab Sample: 2312043-08 Date Received: 06-Dec-23 09:34 % Solids: 74.0 Column: BEH C18
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	93.4	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C3-HFPO-DA	IS	94.7	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C4-PFHpA	IS	93.5	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C3-PFHxS	IS	93.0	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-6:2 FTS	IS	102	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-PFOA	IS	87.9	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C5-PFNA	IS	86.7	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C8-PFOSA	IS	54.7	10 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C8-PFOS	IS	88.1	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-PFDA	IS	69.1	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-8:2 FTS	IS	85.0	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
d3-MeFOSAA	IS	67.6	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
d5-EtFOSAA	IS	64.8	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-PFUnA	IS	68.7	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-10:2 FTS	IS	84.1	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-PFDoA	IS	62.9	25 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-PFTeDA	IS	67.6	20 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1
13C2-PFHxDA	IS	58.9	20 - 150		B23L230	27-Dec-23	1.38 g	29-Dec-23 17:46	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-5 unsaturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-09		Column:	BEH C18
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 15:30	Date Received:	06-Dec-23 09:34			
					% Solids:	76.9			
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFPeA	2706-90-3	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFBS	375-73-5	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
4:2 FTS	757124-72-4	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFHxA	307-24-4	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFPeS	2706-91-4	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
HFPO-DA	13252-13-6	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFHpA	375-85-9	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
ADONA	919005-14-4	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFHxS	355-46-4	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
6:2 FTS	27619-97-2	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFOA	335-67-1	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFHpS	375-92-8	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFNA	375-95-1	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFOSA	754-91-6	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFOS	1763-23-1	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
9Cl-PF3ONS	756426-58-1	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFDA	335-76-2	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
8:2 FTS	39108-34-4	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFNS	68259-12-1	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
MeFOSAA	2355-31-9	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
EtFOSAA	2991-50-6	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFUnA	2058-94-8	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFDS	335-77-3	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
11Cl-PF3OUdS	763051-92-9	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
10:2 FTS	120226-60-0	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFDaA	307-55-1	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFTTrDA	72629-94-8	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFDoS	79780-39-5	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFTeDA	376-06-7	ND	0.482		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFHxDA	67905-19-5	ND	0.963		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
PFODA	16517-11-6	ND	1.44		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.9	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
13C3-PFPeA	IS	95.2	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
13C3-PFBS	IS	94.8	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1
13C2-4:2 FTS	IS	97.6	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1

Sample ID: B-5 unsaturated					PFAS Isotope Dilution Method					
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729					Laboratory Data Lab Sample: 2312043-09 Date Received: 06-Dec-23 09:34 % Solids: 76.9 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	IS	95.3	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C3-HFPO-DA	IS	95.2	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C4-PFHpA	IS	93.3	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C3-PFHxS	IS	93.0	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-6:2 FTS	IS	113	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-PFOA	IS	89.0	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C5-PFNA	IS	84.9	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C8-PFOSA	IS	72.9	10 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C8-PFOS	IS	89.0	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-PFDA	IS	71.8	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-8:2 FTS	IS	93.8	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
d3-MeFOSAA	IS	83.7	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
d5-EtFOSAA	IS	78.2	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-PFUnA	IS	83.4	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-10:2 FTS	IS	85.5	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-PFDoA	IS	81.0	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-PFTeDA	IS	48.2	20 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	
13C2-PFHxDA	IS	18.3	20 - 150	H	B23L230	27-Dec-23	1.35 g	29-Dec-23 18:27	1	

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: B-5 saturated					PFAS Isotope Dilution Method				
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729 Matrix: Soil Date Collected: 04-Dec-23 15:35					Laboratory Data Lab Sample: 2312043-10 Date Received: 06-Dec-23 09:34 % Solids: 83.9 Column: BEH C18				
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFPeA	2706-90-3	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFBS	375-73-5	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
4:2 FTS	757124-72-4	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFHxA	307-24-4	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFPeS	2706-91-4	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
HFPO-DA	13252-13-6	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFHpA	375-85-9	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
ADONA	919005-14-4	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFHxS	355-46-4	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
6:2 FTS	27619-97-2	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFOA	335-67-1	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFHpS	375-92-8	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFNA	375-95-1	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFOSA	754-91-6	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFOS	1763-23-1	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
9Cl-PF3ONS	756426-58-1	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFDA	335-76-2	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
8:2 FTS	39108-34-4	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFNS	68259-12-1	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
MeFOSAA	2355-31-9	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
EtFOSAA	2991-50-6	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFUnA	2058-94-8	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFDS	335-77-3	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
11Cl-PF3OUdS	763051-92-9	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
10:2 FTS	120226-60-0	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFDoA	307-55-1	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFTTrDA	72629-94-8	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFDoS	79780-39-5	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFTeDA	376-06-7	ND	0.485		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFHxDA	67905-19-5	ND	0.970		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
PFODA	16517-11-6	ND	1.45		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.6	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C3-PFPeA	IS	98.9	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C3-PFBS	IS	93.5	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-4:2 FTS	IS	93.9	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1

Sample ID: B-5 saturated **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Apex Companies, LLC	Matrix:	Soil	Lab Sample:	2312043-10	Column:	BEH C18
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 15:35	Date Received:	06-Dec-23 09:34		
				% Solids:	83.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	96.4	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C3-HFPO-DA	IS	92.5	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C4-PFHpA	IS	98.6	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C3-PFHxS	IS	104	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-6:2 FTS	IS	110	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-PFOA	IS	95.5	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C5-PFNA	IS	88.8	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C8-PFOSA	IS	76.0	10 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C8-PFOS	IS	95.6	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-PFDA	IS	77.6	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-8:2 FTS	IS	93.9	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
d3-MeFOSAA	IS	83.9	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
d5-EtFOSAA	IS	77.9	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-PFUnA	IS	82.2	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-10:2 FTS	IS	88.8	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-PFDoA	IS	76.7	25 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-PFTeDA	IS	69.8	20 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1
13C2-PFHxDA	IS	44.0	20 - 150		B23L230	27-Dec-23	1.23 g	29-Dec-23 18:38	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Composite - unsaturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-11		Column:	BEH C18
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 16:30	Date Received:	06-Dec-23 09:34			
					% Solids:	87.3			
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFPeA	2706-90-3	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFBS	375-73-5	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
4:2 FTS	757124-72-4	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFHxA	307-24-4	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFPeS	2706-91-4	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
HFPO-DA	13252-13-6	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFHpA	375-85-9	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
ADONA	919005-14-4	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFHxS	355-46-4	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
6:2 FTS	27619-97-2	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFOA	335-67-1	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFHpS	375-92-8	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFNA	375-95-1	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFOSA	754-91-6	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFOS	1763-23-1	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
9Cl-PF3ONS	756426-58-1	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFDA	335-76-2	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
8:2 FTS	39108-34-4	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFNS	68259-12-1	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
MeFOSAA	2355-31-9	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
EtFOSAA	2991-50-6	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFUnA	2058-94-8	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFDS	335-77-3	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
11Cl-PF3OUdS	763051-92-9	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
10:2 FTS	120226-60-0	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFDoA	307-55-1	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFTTrDA	72629-94-8	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFDoS	79780-39-5	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFTeDA	376-06-7	ND	0.481		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFHxDA	67905-19-5	ND	0.963		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
PFODA	16517-11-6	ND	1.44		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.4	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C3-PFPeA	IS	89.2	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C3-PFBS	IS	94.6	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-4:2 FTS	IS	85.4	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1

Sample ID: Composite - unsaturated					PFAS Isotope Dilution Method				
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729 Matrix: Soil Date Collected: 04-Dec-23 16:30				Laboratory Data					
				Lab Sample: 2312043-11		Column: BEH C18			
				Date Received: 06-Dec-23 09:34					
				% Solids: 87.3					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	88.7	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C3-HFPO-DA	IS	85.4	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C4-PFHpA	IS	89.1	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C3-PFHxS	IS	92.8	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-6:2 FTS	IS	110	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-PFOA	IS	87.3	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C5-PFNA	IS	82.1	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C8-PFOSA	IS	66.6	10 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C8-PFOS	IS	87.2	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-PFDA	IS	71.5	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-8:2 FTS	IS	84.9	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
d3-MeFOSAA	IS	74.2	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
d5-EtFOSAA	IS	67.2	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-PFUnA	IS	76.2	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-10:2 FTS	IS	84.6	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-PFDoA	IS	74.2	25 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-PFTeDA	IS	76.9	20 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1
13C2-PFHxDA	IS	54.4	20 - 150		B23L230	27-Dec-23	1.19 g	29-Dec-23 18:48	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Composite - saturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC		Matrix:	Soil	Lab Sample:	2312043-12		Column:	BEH C18
Project:	PDX Borings / 32-23011729		Date Collected:	04-Dec-23 16:35	Date Received:	06-Dec-23 09:34			
					% Solids:	76.4			
Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFPeA	2706-90-3	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFBS	375-73-5	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
4:2 FTS	757124-72-4	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFHxA	307-24-4	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFPeS	2706-91-4	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
HFPO-DA	13252-13-6	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFHpA	375-85-9	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
ADONA	919005-14-4	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFHxS	355-46-4	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
6:2 FTS	27619-97-2	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFOA	335-67-1	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFHpS	375-92-8	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFNA	375-95-1	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFOSA	754-91-6	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFOS	1763-23-1	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
9Cl-PF3ONS	756426-58-1	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFDA	335-76-2	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
8:2 FTS	39108-34-4	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFNS	68259-12-1	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
MeFOSAA	2355-31-9	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
EtFOSAA	2991-50-6	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFUnA	2058-94-8	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFDS	335-77-3	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
11Cl-PF3OUdS	763051-92-9	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
10:2 FTS	120226-60-0	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFDaA	307-55-1	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFTTrDA	72629-94-8	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFDoS	79780-39-5	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFTeDA	376-06-7	ND	0.485		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFHxDA	67905-19-5	ND	0.970		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
PFODA	16517-11-6	ND	1.45		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.2	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C3-PFPeA	IS	91.3	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C3-PFBS	IS	91.4	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-4:2 FTS	IS	78.9	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1

Sample ID: Composite - saturated					PFAS Isotope Dilution Method				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Soil	Lab Sample:	2312043-12	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 16:35	Date Received:	06-Dec-23 09:34				
				% Solids:	76.4				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	92.1	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C3-HFPO-DA	IS	87.4	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C4-PFHpA	IS	90.9	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C3-PFHxS	IS	90.2	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-6:2 FTS	IS	113	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-PFOA	IS	83.7	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C5-PFNA	IS	81.6	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C8-PFOSA	IS	64.1	10 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C8-PFOS	IS	85.6	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-PFDA	IS	72.7	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-8:2 FTS	IS	85.5	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
d3-MeFOSAA	IS	71.5	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
d5-EtFOSAA	IS	67.3	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-PFUnA	IS	78.2	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-10:2 FTS	IS	81.8	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-PFDoA	IS	70.2	25 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-PFTeDA	IS	66.5	20 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1
13C2-PFHxDA	IS	40.2	20 - 150		B23L230	27-Dec-23	1.35 g	29-Dec-23 18:58	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank					EPA Method 1633				
Client Data Name: Apex Companies, LLC Project: PDX Borings / 32-23011729					Laboratory Data Lab Sample: B23L090-BLK1 Column: BEH C18				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	6.40		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFMPA	ND	3.20		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
3:3 FTCA	ND	8.00		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFPeA	ND	3.20		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFMBA	ND	3.20		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFBS	ND	1.42		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
4:2 FTS	ND	6.00		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFHxA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFEESA	ND	2.85		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFPeS	ND	1.50		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
HFPO-DA	ND	6.68		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
NFDHA	ND	3.20		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
5:3 FTCA	ND	40.0		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFHpA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
ADONA	ND	6.32		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFHxS	ND	1.46		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
6:2 FTS	ND	6.07		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFOA	ND	2.00		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFHpS	ND	1.52		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
7:3 FTCA	ND	40.0		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFNA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFOSA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFOS	ND	1.49		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
9Cl-PF3ONS	ND	6.24		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFDA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
8:2 FTS	ND	6.14		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFNS	ND	1.54		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
MeFOSAA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
EtFOSAA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFOA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFDS	ND	1.54		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
11Cl-PF3OUdS	ND	6.00		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFDaA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
MeFOSA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFTTrDA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFDoS	ND	1.55		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
PFTeDA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	
EtFOSA	ND	1.60		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1	

Sample ID: Method Blank					EPA Method 1633					
Client Data				Laboratory Data						
Name: Apex Companies, LLC		Matrix: Aqueous		Lab Sample: B23L090-BLK1		Column: BEH C18				
Project: PDX Borings / 32-23011729										
Analyte	Conc. (ng/L)			RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
MeFOSE	ND			16.0		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
EtFOSE	ND			16.0		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	74.2	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C5-PFPeA	IS	77.5	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C2-4:2 FTS	IS	81.3	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C3-PFBS	IS	79.8	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C5-PFHxA	IS	75.6	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C4-PFHpA	IS	73.6	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C3-HFPO-DA	IS	74.4	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C2-6:2 FTS	IS	78.9	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C8-PFOA	IS	81.4	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C3-PFHxS	IS	76.0	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C9-PFNA	IS	73.8	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C2-8:2 FTS	IS	82.2	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C6-PFDA	IS	73.6	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
d3-MeFOSAA	IS	71.0	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C8-PFOS	IS	72.7	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
d5-EtFOSAA	IS	68.6	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C7-PFUnA	IS	74.9	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C8-PFOSA	IS	49.4	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C2-PFDoA	IS	59.4	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
13C2-PFTeDA	IS	64.2	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
d7-MeFOSE	IS	39.7	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
d3-MeFOSA	IS	31.6	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
d9-EtFOSE	IS	38.1	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1
d5-EtFOSA	IS	28.8	20 - 150			B23L090	14-Dec-23	0.500 L	18-Dec-23 23:26	1

RL - Reporting limit

Results reported to RL.

Sample ID: LCSD
EPA Method 1633

Name:	Apex Companies, LLC			Lab Sample:	B23L090-BS1/B23L090-BSD1							Date Extracted:	14-Dec-23		
Project:	PDX Borings / 32-23011729			QC Batch:	B23L090							Column:	BEH C18		
Matrix:	Aqueous			Samp Size:	0.500/0.500 L										
Analyte	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	23.0	20.0	115		21.1	20.0	106	8.58		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFMPA	11.5	10.0	115		9.93	10.0	99.3	14.9		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
3:3 FTCA	25.2	25.0	101		23.8	25.0	95.4	5.35		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFPeA	10.9	10.0	109		10.3	10.0	103	6.17		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFMBA	11.9	10.0	119		10.8	10.0	108	9.09		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFBS	4.89	4.44	110		4.43	4.44	99.9	9.86		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
4:2 FTS	20.6	18.8	110		18.8	18.8	100	8.92		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFHxA	5.42	5.00	108		5.06	5.00	101	6.81		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFEESA	10.6	8.88	119		10.0	8.88	113	5.04		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFPeS	5.19	4.72	110		4.86	4.72	103	6.47		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
HFPO-DA	23.8	21.2	112		22.8	21.2	108	4.06		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
NFDHA	12.1	10.0	121		11.3	10.0	113	6.74		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
5:3 FTCA	132	125	106		128	125	102	3.33		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFHpA	5.83	5.00	117		5.45	5.00	109	6.72		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
ADONA	24.0	20.0	120		22.4	20.0	112	6.94		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFHxS	4.92	4.56	108		4.63	4.56	102	6.03		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
6:2 FTS	21.9	19.0	115		21.1	19.0	111	3.89		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFOA	5.61	5.00	112		5.35	5.00	107	4.76		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFHpS	5.09	4.76	107		5.00	4.76	105	1.88		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
7:3 FTCA	114	125	91.6		114	125	91.1	0.566		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFNA	5.23	5.00	105		5.33	5.00	107	1.99		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFOSA	5.89	5.00	118		5.12	5.00	102	14.0		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFOS	5.18	4.64	112		4.80	4.64	103	7.61		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
9Cl-PF3ONS	23.8	19.8	120		22.9	19.8	116	3.82		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFDA	6.23	5.00	125		5.33	5.00	107	15.5		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
8:2 FTS	22.3	19.2	116		19.6	19.2	102	12.9		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFNS	4.78	4.80	99.6		4.69	4.80	97.6	1.94		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
MeFOSAA	5.55	5.00	111		5.21	5.00	104	6.29		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
EtFOSAA	4.64	5.00	92.8		4.54	5.00	90.8	2.16		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFUnA	5.49	5.00	110		5.30	5.00	106	3.52		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFDS	4.83	4.84	99.8		4.76	4.84	98.4	1.40		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
11Cl-PF3OUdS	20.6	20.0	103		20.8	20.0	104	1.33		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFDoA	6.19	5.00	124		5.48	5.00	110	12.3		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1

Sample ID: LCSD
EPA Method 1633

Name:	Apex Companies, LLC	Lab Sample:	B23L090-BS1/B23L090-BSD1	Date Extracted:	14-Dec-23
Project:	PDX Borings / 32-23011729	QC Batch:	B23L090	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.500/0.500 L		

Analyte	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
MeFOSA	6.26	5.00	125		5.95	5.00	119	5.10		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFTTrDA	5.08	5.00	102		5.13	5.00	103	0.960		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFDoS	4.64	4.84	95.8		4.46	4.84	92.2	3.83		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
PFTeDA	5.62	5.00	112		4.97	5.00	99.4	12.2		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
EtFOSA	5.60	5.00	112		5.65	5.00	113	0.925		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
MeFOSE	59.6	50.0	119		57.0	50.0	114	4.44		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1
EtFOSE	62.4	50.0	125		60.6	50.0	121	2.92		40-150	30	18-Dec-23 23:40	1	19-Dec-23 00:07	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C4-PFBA	IS	90.3		78.1		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C5-PFPeA	IS	91.3		82.9		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C2-4:2 FTS	IS	103		84.2		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C3-PFBS	IS	94.6		81.9		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C5-PFHxA	IS	87.3		76.7		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C4-PFHpA	IS	86.6		76.8		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C3-HFPO-DA	IS	87.0		79.1		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C2-6:2 FTS	IS	100		79.6		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C8-PFOA	IS	85.2		77.5		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C3-PFHxS	IS	93.3		81.5		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C9-PFNA	IS	94.3		80.9		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C2-8:2 FTS	IS	91.1		83.4		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C6-PFDA	IS	79.6		79.4		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
d3-MeFOSAA	IS	77.0		73.0		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C8-PFOS	IS	91.1		77.8		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
d5-EtFOSAA	IS	78.2		71.3		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C7-PFUnA	IS	81.3		76.8		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C8-PFOSA	IS	58.1		55.0		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C2-PFDoA	IS	67.2		64.7		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
13C2-PFTeDA	IS	69.4		73.1		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
d7-MeFOSE	IS	45.3		42.6		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
d3-MeFOSA	IS	28.8		33.8		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
d9-EtFOSE	IS	44.2		41.2		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1
d5-EtFOSA	IS	26.9		33.3		20 - 150	18-Dec-23 23:40	1	19-Dec-23 00:07	1

Sample ID: OPR
EPA Method 1633

Client Data					Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Aqueous		Lab Sample:	B23L090-BS2	Column:	BEH C18		
Project:	PDX Borings / 32-23011729									
Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	15.2	12.8	119	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFMPA	7.27	6.40	114	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
3:3 FTCA	16.9	16.0	105	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFPeA	7.49	6.40	117	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFMBA	7.99	6.40	125	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFBS	3.35	2.84	118	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
4:2 FTS	14.3	12.0	119	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFHxA	3.67	3.20	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFEESA	6.56	5.68	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFPeS	3.38	3.01	112	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
HFPO-DA	15.1	12.8	118	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
NFDHA	7.36	6.40	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
5:3 FTCA	82.0	80.0	102	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFHpA	3.80	3.20	119	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
ADONA	14.9	12.1	124	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFHxS	3.38	2.92	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
6:2 FTS	14.0	12.2	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFOA	3.76	3.20	118	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFHpS	3.67	3.05	121	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
7:3 FTCA	73.8	80.0	92.2	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFNA	3.77	3.20	118	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFOSA	3.94	3.20	123	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFOS	3.33	2.97	112	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
9Cl-PF3ONS	15.0	12.0	125	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFDA	3.67	3.20	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
8:2 FTS	14.4	12.3	118	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFNS	3.38	3.08	110	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
MeFOSAA	3.39	3.20	106	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
EtFOSAA	3.36	3.20	105	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFUnA	3.90	3.20	122	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFDS	3.05	3.09	98.8	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
11Cl-PF3OUdS	12.8	12.1	106	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFDaA	3.58	3.20	112	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
MeFOSA	3.45	3.20	108	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1

Sample ID: OPR
EPA Method 1633

Client Data					Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Aqueous		Lab Sample:	B23L090-BS2	Column:	BEH C18		
Project:	PDX Borings / 32-23011729									
Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFTTrDA	3.68	3.20	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFDoS	2.91	3.10	93.8	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
PFTeDA	3.74	3.20	117	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
EtFOSA	3.52	3.20	110	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
MeFOSE	36.8	32.0	115	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
EtFOSE	38.9	32.0	122	40 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
Labeled Standards	Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS		77.1	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C5-PFPeA	IS		81.6	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C2-4:2 FTS	IS		78.4	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C3-PFBS	IS		80.5	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C5-PFHxA	IS		80.3	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C4-PFHpA	IS		76.2	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C3-HFPO-DA	IS		79.8	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C2-6:2 FTS	IS		81.6	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C8-PFOA	IS		76.1	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C3-PFHxS	IS		78.3	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C9-PFNA	IS		79.1	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C2-8:2 FTS	IS		78.1	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C6-PFDA	IS		70.3	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
d3-MeFOSAA	IS		66.2	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C8-PFOS	IS		76.2	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
d5-EtFOSAA	IS		64.5	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C7-PFUnA	IS		66.5	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C8-PFOSA	IS		51.6	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C2-PFDoA	IS		59.1	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
13C2-PFTeDA	IS		57.4	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
d7-MeFOSE	IS		42.1	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
d3-MeFOSA	IS		27.5	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
d9-EtFOSE	IS		40.4	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1
d5-EtFOSA	IS		26.3	20 - 150		B23L090	14-Dec-23	0.500 L	18-Dec-23 23:53	1

Sample ID: B-1					EPA Method 1633				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-13	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 12:35	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	55.2		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFMPA	ND	27.6		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
3:3 FTCA	ND	69.0		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFPeA	ND	27.6		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFMBA	ND	27.6		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFBS	ND	12.2		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
4:2 FTS	ND	51.7		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFHxA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFEESA	ND	24.6		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFPeS	ND	12.9		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
HFPO-DA	ND	57.6		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
NFDHA	ND	27.6		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
5:3 FTCA	ND	345		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFHpA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
ADONA	ND	54.5		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFHxS	ND	12.6		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
6:2 FTS	ND	52.3		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFOA	ND	17.2		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFHpS	ND	13.1		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
7:3 FTCA	ND	345		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFNA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFOSA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFOS	ND	12.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
9Cl-PF3ONS	ND	53.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFDA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
8:2 FTS	ND	52.9		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFNS	ND	13.3		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
MeFOSAA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
EtFOSAA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFUnA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFDS	ND	13.3		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
11Cl-PF3OUdS	ND	51.7		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFDoA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
MeFOSA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFTTrDA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFDoS	ND	13.4		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
PFTeDA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	

Sample ID: B-1				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-13	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 12:35	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
EtFOSA	ND	13.8		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
MeFOSE	ND	138		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
EtFOSE	ND	138		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	71.6	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C5-PFPeA	IS	80.0	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C2-4:2 FTS	IS	78.0	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C3-PFBS	IS	78.6	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C5-PFHxA	IS	75.3	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C4-PFHpA	IS	78.9	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C3-HFPO-DA	IS	77.0	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C2-6:2 FTS	IS	74.0	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C8-PFOA	IS	70.3	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C3-PFHxS	IS	72.6	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C9-PFNA	IS	73.1	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C2-8:2 FTS	IS	59.2	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C6-PFDA	IS	58.3	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
d3-MeFOSAA	IS	50.2	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C8-PFOS	IS	66.8	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
d5-EtFOSAA	IS	45.9	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C7-PFUnA	IS	44.9	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C8-PFOSA	IS	41.5	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C2-PFDoA	IS	40.7	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
13C2-PFTeDA	IS	44.2	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
d7-MeFOSE	IS	29.9	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
d3-MeFOSA	IS	19.2	20 - 150	Q	B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
d9-EtFOSE	IS	27.7	20 - 150		B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1
d5-EtFOSA	IS	19.1	20 - 150	Q	B23L090	14-Dec-23	0.0580 L	19-Dec-23 00:20	1

RL - Reporting limit

Results reported to RL.

Sample ID: B-2				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-14	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 11:05	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	457		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFMPA	ND	229		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
3:3 FTCA	ND	571		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFPeA	ND	229		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFMBA	ND	229		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFBS	ND	101		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
4:2 FTS	ND	429		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFHxA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFEESA	ND	204		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFPeS	ND	107		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
HFPO-DA	ND	477		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
NFDHA	ND	229		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
5:3 FTCA	ND	2860		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFHpA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
ADONA	ND	451		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFHxS	ND	104		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
6:2 FTS	ND	434		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFOA	ND	143		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFHpS	ND	109		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
7:3 FTCA	ND	2860		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFNA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFOSA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFOS	ND	106		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
9Cl-PF3ONS	ND	446		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFDA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
8:2 FTS	ND	439		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFNS	ND	110		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
MeFOSAA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
EtFOSAA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFUnA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFDS	ND	110		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
11Cl-PF3OUdS	ND	429		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFDoA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
MeFOSA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFTTrDA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFDoS	ND	111		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
PFTeDA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	

Sample ID: B-2				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-14	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 11:05	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
EtFOSA	ND	114		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
MeFOSE	ND	1140		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
EtFOSE	ND	1140		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	82.0	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C5-PFPeA	IS	88.3	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C2-4:2 FTS	IS	88.7	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C3-PFBS	IS	87.6	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C5-PFHxA	IS	80.1	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C4-PFHpA	IS	83.3	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C3-HFPO-DA	IS	84.8	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C2-6:2 FTS	IS	87.2	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C8-PFOA	IS	85.1	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C3-PFHxS	IS	87.4	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C9-PFNA	IS	85.0	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C2-8:2 FTS	IS	77.9	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C6-PFDA	IS	83.7	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
d3-MeFOSAA	IS	75.0	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C8-PFOS	IS	82.4	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
d5-EtFOSAA	IS	73.0	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C7-PFUnA	IS	79.1	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C8-PFOSA	IS	63.0	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C2-PFDoA	IS	75.3	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
13C2-PFTeDA	IS	68.3	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
d7-MeFOSE	IS	52.0	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
d3-MeFOSA	IS	32.3	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
d9-EtFOSE	IS	47.7	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1
d5-EtFOSA	IS	34.3	20 - 150		B23L090	14-Dec-23	0.00700 L	19-Dec-23 00:34	1

RL - Reporting limit

Results reported to RL.

Sample ID: B-3				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-15	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 09:35	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	246		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFMPA	ND	123		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
3:3 FTCA	ND	308		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFPeA	ND	123		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFMBA	ND	123		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFBS	ND	54.6		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
4:2 FTS	ND	231		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFHxA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFEESA	ND	110		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFPeS	ND	57.7		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
HFPO-DA	ND	257		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
NFDHA	ND	123		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
5:3 FTCA	ND	1540		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFHpA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
ADONA	ND	243		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFHxS	ND	56.2		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
6:2 FTS	ND	233		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFOA	ND	76.9		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFHpS	ND	58.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
7:3 FTCA	ND	1540		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFNA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFOSA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFOS	ND	57.3		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
9Cl-PF3ONS	ND	240		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFDA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
8:2 FTS	ND	236		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFNS	ND	59.2		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
MeFOSAA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
EtFOSAA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFUnA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFDS	ND	59.2		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
11Cl-PF3OUdS	ND	231		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFDoA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
MeFOSA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFTTrDA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFDoS	ND	59.6		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
PFTeDA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	

Sample ID: B-3				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-15	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 09:35	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
EtFOSA	ND	61.5		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
MeFOSE	ND	615		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
EtFOSE	ND	615		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	73.4	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C5-PFPeA	IS	76.9	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C2-4:2 FTS	IS	80.9	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C3-PFBS	IS	81.5	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C5-PFHxA	IS	72.4	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C4-PFHpA	IS	72.5	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C3-HFPO-DA	IS	74.9	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C2-6:2 FTS	IS	81.5	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C8-PFOA	IS	80.3	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C3-PFHxS	IS	77.4	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C9-PFNA	IS	75.4	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C2-8:2 FTS	IS	78.2	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C6-PFDA	IS	67.8	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
d3-MeFOSAA	IS	78.1	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C8-PFOS	IS	76.3	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
d5-EtFOSAA	IS	81.1	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C7-PFUnA	IS	72.1	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C8-PFOSA	IS	62.8	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C2-PFDoA	IS	66.6	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
13C2-PFTeDA	IS	72.8	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
d7-MeFOSE	IS	57.3	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
d3-MeFOSA	IS	42.8	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
d9-EtFOSE	IS	54.1	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1
d5-EtFOSA	IS	44.5	20 - 150		B23L090	14-Dec-23	0.0130 L	19-Dec-23 00:48	1

RL - Reporting limit

Results reported to RL.

Sample ID: B-4					EPA Method 1633				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-16	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 14:15	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	37.2		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFMPA	ND	18.6		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
3:3 FTCA	ND	46.5		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFPeA	ND	18.6		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFMBA	ND	18.6		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFBS	ND	8.26		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
4:2 FTS	ND	34.9		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFHxA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFEESA	ND	16.6		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFPeS	ND	8.72		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
HFPO-DA	ND	38.8		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
NFDHA	ND	18.6		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
5:3 FTCA	ND	233		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFHpA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
ADONA	ND	36.7		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFHxS	ND	8.49		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
6:2 FTS	ND	35.3		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFOA	19.0	11.6		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFHpS	ND	8.84		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
7:3 FTCA	ND	233		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFNA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFOSA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFOS	ND	8.66		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
9Cl-PF3ONS	ND	36.3		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFDA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
8:2 FTS	ND	35.7		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFNS	ND	8.95		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
MeFOSAA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
EtFOSAA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFUnA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFDS	ND	8.95		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
11Cl-PF3OUdS	ND	34.9		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFDoA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
MeFOSA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFTTrDA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFDoS	ND	9.01		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
PFTeDA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	

Sample ID: B-4				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-16	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 14:15	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
EtFOSA	ND	9.30		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
MeFOSE	ND	93.0		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
EtFOSE	ND	93.0		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	69.6	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C5-PFPeA	IS	72.1	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C2-4:2 FTS	IS	78.2	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C3-PFBS	IS	74.6	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C5-PFHxA	IS	68.4	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C4-PFHpA	IS	69.4	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C3-HFPO-DA	IS	69.3	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C2-6:2 FTS	IS	74.3	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C8-PFOA	IS	67.9	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C3-PFHxS	IS	73.5	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C9-PFNA	IS	71.3	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C2-8:2 FTS	IS	71.8	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C6-PFDA	IS	68.7	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
d3-MeFOSAA	IS	75.0	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C8-PFOS	IS	73.2	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
d5-EtFOSAA	IS	81.8	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C7-PFUnA	IS	68.3	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C8-PFOSA	IS	66.0	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C2-PFDoA	IS	63.0	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
13C2-PFTeDA	IS	69.7	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
d7-MeFOSE	IS	62.0	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
d3-MeFOSA	IS	52.5	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
d9-EtFOSE	IS	61.0	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1
d5-EtFOSA	IS	54.2	20 - 150		B23L090	14-Dec-23	0.0860 L	19-Dec-23 01:01	1

RL - Reporting limit

Results reported to RL.

Sample ID: B-5					EPA Method 1633				
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-17	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 15:50	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	ND	1600		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFMPA	ND	800		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
3:3 FTCA	ND	2000		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFPeA	ND	800		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFMBA	ND	800		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFBS	ND	355		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
4:2 FTS	ND	1500		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFHxA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFEESA	ND	712		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFPeS	ND	375		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
HFPO-DA	ND	1670		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
NFDHA	ND	800		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
5:3 FTCA	ND	10000		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFHpA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
ADONA	ND	1580		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFHxS	ND	365		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
6:2 FTS	ND	1520		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFOA	ND	500		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFHpS	ND	380		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
7:3 FTCA	ND	10000		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFNA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFOSA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFOS	ND	373		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
9Cl-PF3ONS	ND	1560		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFDA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
8:2 FTS	ND	1540		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFNS	ND	385		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
MeFOSAA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
EtFOSAA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFUnA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFDS	ND	385		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
11Cl-PF3OUdS	ND	1500		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFDoA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
MeFOSA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFTTrDA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFDoS	ND	388		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	
PFTeDA	ND	400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1	

Sample ID: B-5				EPA Method 1633					
Client Data				Laboratory Data					
Name:	Apex Companies, LLC	Matrix:	Water	Lab Sample:	2312043-17	Column:	BEH C18		
Project:	PDX Borings / 32-23011729	Date Collected:	04-Dec-23 15:50	Date Received:	06-Dec-23 09:34				
Analyte	Conc. (ng/L)		RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
EtFOSA	ND		400		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
MeFOSE	ND		4000		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
EtFOSE	ND		4000		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C4-PFBA	IS	88.4	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C5-PFPeA	IS	87.4	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C2-4:2 FTS	IS	97.7	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C3-PFBS	IS	92.4	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C5-PFHxA	IS	84.0	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C4-PFHpA	IS	85.0	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C3-HFPO-DA	IS	85.5	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C2-6:2 FTS	IS	86.1	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C8-PFOA	IS	86.5	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C3-PFHxS	IS	83.6	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C9-PFNA	IS	77.8	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C2-8:2 FTS	IS	76.6	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C6-PFDA	IS	71.0	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
d3-MeFOSAA	IS	72.9	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C8-PFOS	IS	76.7	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
d5-EtFOSAA	IS	72.9	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C7-PFUnA	IS	72.3	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C8-PFOSA	IS	63.4	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C2-PFDoA	IS	68.9	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
13C2-PFTeDA	IS	77.7	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
d7-MeFOSE	IS	58.9	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
d3-MeFOSA	IS	49.4	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
d9-EtFOSE	IS	56.9	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1
d5-EtFOSA	IS	52.2	20 - 150		B23L090	14-Dec-23	0.00200 L	19-Dec-23 01:15	1

RL - Reporting limit

Results reported to RL.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.



ENTHALPY

ANALYTICAL

Chain of Custody Record

Lab No:

Page:

1

of

2

Turn Around Time (rush by advanced notice only)

Standard:

X

5 Day:

3 Day:

2 Day:

1 Day:

Custom TAT:

Matrix: A = Air S = Soil/Solid

W = Water DW = Drinking Water SD = Sediment

PP = Pure Product SEA = Sea Water

SW = Swab T = Tissue WP = Wipe O = Other

Preservatives:

1 = Na₂S₂O₃ 2 = HCl 3 = HNO₃4 = H₂SO₄ 5 = NaOH 6 = Other

Sample Receipt Temp:

(lab use only)

CUSTOMER INFORMATION

PROJECT INFORMATION

Analysis Request

Test Instructions / Comments

Company: Apex Companies, LLC

Report To: Carmen Owens

Email: carmen.owens@apexcos.com

Address: 15618 SW 72nd Ave

Tigard, OR 97224

Phone: 503-924-4704

Fax:

Name: PDX Borings

Number: 32-23011729

P.O. #:

Address: PDX

Global ID:

Sampled By:

PFAS by EPA Method 1631

PFAS by Isotope Dilution Method

Sample ID

Sampling
DateSampling
Time

Matrix

Container
No. / Size

Pres.

1 B-1 unsaturated

12/04/23

1205

S

2 x 4oz HDPE

None

x

2 B-1 saturated

12/04/23

1220

S

2 x 4oz HDPE

None

x

3 B-2 unsaturated

12/04/23

1035

S

2 x 4oz HDPE

None

x

4 B-2 saturated

12/04/23

1040

S

2 x 4oz HDPE

None

x

5 B-3 unsaturated

12/04/23

0900

S

2 x 4oz HDPE

None

x

6 B-3 saturated

12/04/23

0905

S

2 x 4oz HDPE

None

x

7 B-4 unsaturated

12/04/23

1400

S

2 x 4oz HDPE

None

x

8 B-4 saturated

12/04/23

1405

S

2 x 4oz HDPE

None

x

9 B-5 unsaturated

12/04/23

1530

S

2 x 4oz HDPE

None

x

10 B-5 saturated

12/04/23

1535

S

2 x 4oz HDPE

None

x

Signature

Print Name

Company / Title

Date / Time

1 Relinquished By:

David Kolpacki

David Kolpacki

Apex Companies, LLC /

12/15/23 - 1000

1 Received By:

Korayla

K

Enthalpy EDA

12/16/23 09:34

2 Relinquished By:

2 Received By:

3 Relinquished By:

3 Received By:



ENTHALPY

ANALYTICAL

Chain of Custody Record

Lab No:

Page:

2

of

2

Standard:

X

2 Day:

5 Day:

1 Day:

3 Day:

Custom TAT:

Matrix: A = Air S = Soil/Solid

W = Water DW = Drinking Water SD = Sediment

PP = Pure Product SEA = Sea Water

SW = Swab T = Tissue WP = Wipe O = Other

Preservatives:

1 = Na₂S₂O₃ 2 = HCl 3 = HNO₃4 = H₂SO₄ 5 = NaOH 6 = Other

Sample Receipt Temp:

(lab use only)

CUSTOMER INFORMATION

PROJECT INFORMATION

Analysis Request

Test Instructions / Comments

Company: Apex Companies, LLC

Report To: Carmen Owens

Email: carmen.owens@apexcos.com

Address: 15618 SW 72nd Ave

Tigard, OR 97224

Phone: 503-924-4704

Fax:

Name: PDX Borings

Number: 32-23011729

P.O. #:

Address: PDX

Global ID:

Sampled By:

Sample ID

Sampling
DateSampling
Time

Matrix

Container
No. / Size

Pres.

PFAS by EPA Method 1633
PFAS by Isotope Dilution Method

11 Composite - unsaturated

12/04/23

1630

S

1 x 1 qt HDPE

None

x

12 Composite - saturated

12/04/23

1635

S

1 x 1 qt HDPE

None

x

13 B-1

12/04/23

1235

W

3 x HDPE Various

None

x

14 B-2

12/04/23

1105

W

3 x HDPE Various

None

x

15 B-3

12/04/23

0935

W

3 x HDPE Various

None

x

16 B-4

12/04/23

1415

W

3 x HDPE Various

None

x

17 B-5

12/04/23

1550

W

3 x HDPE Various

None

x

Signature

Print Name

Company / Title

Date / Time

1 Relinquished By:

David Kolpacki

David Kolpacki

Apex Companies, LLC /

12/15/23 - 1000

1 Received By:

K

Karan 7. Ah

Enthalpy CDH

12/16/23 09:34

2 Relinquished By:

2 Received By:

3 Relinquished By:

3 Received By:

Sample Log-In Checklist



Page # 1 of 1

Work Order #: 2312043 TAT 5/12

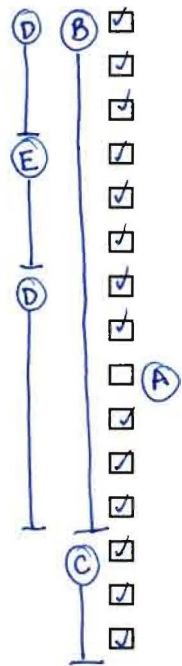
Samples Arrival:	Date/Time <u>12/06/23 09:34</u>	Initials: <u>162</u>	Location: <u>WR-2</u>
			Shelf/Rack: <u>R12</u>
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
	☐ GLS	☐ DHL	☐ Hand Delivered
	☐ Other		
Preservation:	☒ Ice	☐ Blue Ice	☐ Techni Ice
	☐ Dry Ice	☐ None	
Temp °C: <u>5.4</u> (uncorrected)	Probe used: Y / ☒ N		Thermometer ID: <u>I R-4</u>
Temp °C: <u>5.4</u> (corrected)			

	YES	NO	NA
Shipping Container(s) Intact?	☒	☐	☐
Shipping Custody Seals Intact?	☒	☐	☐
Airbill <u>/</u> Trk # <u>7743 5665 7269</u>	☒	☐	☐
Shipping Documentation Present?	☒	☐	☐
Shipping Container	☒ Enthalpy	☐ Client	☐ Retain
	☐ Return	☐ Dispose	
Chain of Custody / Sample Documentation Present?	☒	☐	☐
Chain of Custody / Sample Documentation Complete?	☒	☐	☐
Holding Time Acceptable?	☒	☐	☐
Logged In:	Date/Time <u>12/07/23 14:23</u>	Initials: <u>162</u>	Location: <u>R-13, WR-2</u>
			Shelf/Rack: <u>A-4, B-5</u>
COC Anomaly/Sample Acceptance Form completed?	☐	☒	☒

Comments:

CoC/Label Reconciliation Report WO# 2312043

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2312043-01	A B-1 unsaturated	☒	04-Dec-23 12:05	☒	HDPE Jar, 6 oz	Solid
2312043-02	A B-1 saturated	☒	04-Dec-23 12:20	☒	HDPE Jar, 6 oz	Solid
2312043-03	A B-2 unsaturated	☒	04-Dec-23 10:35	☒	HDPE Jar, 6 oz	Solid
2312043-04	A B-2 saturated	☒	04-Dec-23 10:40	☒	HDPE Jar, 6 oz	Solid
2312043-05	A B-3 unsaturated	☒	04-Dec-23 09:00	☒	HDPE Jar, 6 oz	Solid
2312043-06	A B-3 saturated	☒	04-Dec-23 09:05	☒	HDPE Jar, 6 oz	Solid
2312043-07	A B-4 unsaturated	☒	04-Dec-23 14:00	☒	HDPE Jar, 6 oz	Solid
2312043-08	A B-4 saturated	☒	04-Dec-23 14:05	☒	HDPE Jar, 6 oz	Solid
2312043-09	A B-5 unsaturated	☒	04-Dec-23 15:30	☒	HDPE Jar, 6 oz	Solid
2312043-10	A B-5 saturated	☒	04-Dec-23 15:35	☒	HDPE Jar, 6 oz	Solid
2312043-11	A Composite - unsaturated	☒	04-Dec-23 16:30	☒	HDPE Bottle, 1L	Solid
2312043-12	A Composite - saturated	☒	04-Dec-23 16:35	☒	HDPE Bottle, 1L	Solid
2312043-13	A B-1	☒	04-Dec-23 12:35	☒	HDPE Bottle, 500 mL	Aqueous
2312043-13	B B-1	☒	04-Dec-23 12:35	☒	HDPE Bottle, 500 mL	Aqueous
2312043-13	C B-1	☒	04-Dec-23 12:35	☒	HDPE Bottle, 125 mL	Aqueous
2312043-14	A B-2	☒	04-Dec-23 11:05	☒	HDPE Bottle, 500 mL	Aqueous
2312043-14	B B-2	☒	04-Dec-23 11:05	☒	HDPE Bottle, 500 mL	Aqueous
2312043-14	C B-2	☒	04-Dec-23 11:05	☒	HDPE Bottle, 125 mL	Aqueous
2312043-15	A B-3	☒	04-Dec-23 09:35	☒	HDPE Bottle, 500 mL	Aqueous
2312043-15	B B-3	☒	04-Dec-23 09:35	☒	HDPE Bottle, 500 mL	Aqueous
2312043-15	C B-3	☐	04-Dec-23 09:35	☐	HDPE Bottle, 125 mL	Aqueous
2312043-16	A B-4	☒	04-Dec-23 14:15	☒	HDPE Bottle, 500 mL	Aqueous
2312043-16	B B-4	☒	04-Dec-23 14:15	☒	HDPE Bottle, 500 mL	Aqueous
2312043-16	C B-4	☒	04-Dec-23 14:15	☒	HDPE Bottle, 125 mL	Aqueous
2312043-17	A B-5	☒	04-Dec-23 15:50	☒	HDPE Bottle, 500 mL	Aqueous
2312043-17	B B-5	☒	04-Dec-23 15:50	☒	HDPE Bottle, 500 mL	Aqueous
2312043-17	C B-5	☒	04-Dec-23 15:50	☒	HDPE Bottle, 125 mL	Aqueous



Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	☒	☐	☐
Sample Custody Seals Intact?	☐	☐	☒
Adequate Sample Volume?	☒	☐	☐
Container Type Appropriate for Analysis(es)	☒	☐	☐

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None Other

Verified by/Date: JT 12/08/23
KA 12/08/23

Comments:

- Ⓐ Sample label not legible
- Ⓑ ~5% particulate
- Ⓒ ~10% particulate
- Ⓓ Sample contains light color.
- Ⓔ Sample contains dark color.